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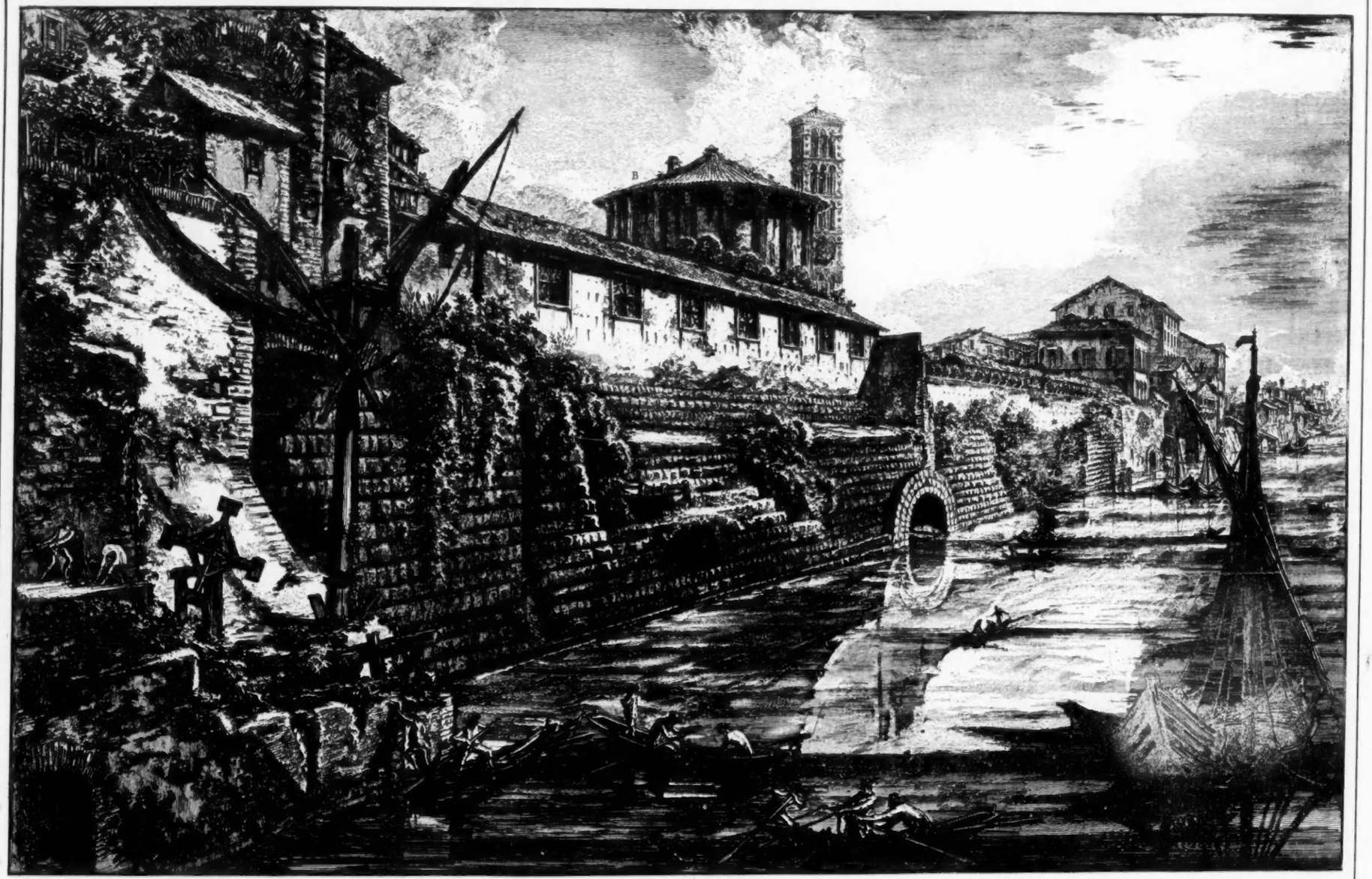


THE MOUTH OF THE CLOACA MAXIMA AND THE EMBANKMENT ALONG THE TIBER RIVER, ROME.

GIOVANNI BATTISTA PIRANESI, DEL.

The Cloaca Maxima, or great vaulted drain of the Roman Forum was built about B. C. 600, of blocks, some of which are 5½ feet long and 3 feet thick, while the discharging archway consists of three concentric arches, the innermost one being 13½ feet wide. The stones are fitted with the greatest accuracy and without cement. Servius Tullius completed the first great wall of Rome, enclosing the seven hills. Between the Aventine Hill and the Capotoline Hill it took the form of a retaining wall along the river. When Piranesi made this engraving this section was still to be seen, but now it is concealed behind the new embankment built to protect Rome from inundations of the Tiber River.

THE BRICKBVILDER

VOL. 18 NO. 6 DEVOTED TO THE INTERESTS OF ARCHITECTVRE IN MATERIALS OF CLAY JUNE 1909

Warming and Ventilating with Special Reference to Hospital Buildings—II.

BY D. D. KIMBALL.

THE ideal condition as it relates to ventilation, is the maintenance of the quality of the air within as near as possible to that of the outdoor air. It is customary to determine the quality of the air by the measurement of the number of parts CO_2 (carbonic acid, sometimes called carbonic acid gas, or carbon dioxide). The quantity of this varies in different localities, as in cities and towns, and under different weather conditions, and is variously stated by authorities to be from less than three to more than six with an average of approximately four parts CO_2 in ten thousand parts of air.

It is an easy matter to determine the cubic feet of air required per hour per person to maintain a given standard of purity by the use of the following formula:

$$V = 10{,}000 \frac{G}{S - P}$$, in which

V = cubic feet fresh air per hour per person
G = ,, ,, CO_2 given off per hour per person (usually 0.6)
S = the standard of purity to be maintained in parts of CO_2 in 10,000 (should not be over eight)
P = standard of purity of fresh air (usually four)

There should also be provided 1,440 cubic feet of air per hour for each cubic foot of gas burned.

It is important if one desires to provide for definite conditions that this standard of quality of the air should be thoroughly understood, as is too often not the case even among men claiming to be engineers. An instance occurred recently in which a school board questioned a supposed engineer as to the number of parts CO_2 in 10,000 parts of air permissible and received the surprising answer that "it might be four hundred to five hundred."

The air within occupied buildings is to be considered entirely satisfactory if it contains six parts CO_2 in ten thousand parts of air, but eight parts is perhaps more often accepted as the maximum in a properly ventilated room. Inconvenience is usually felt, if conditions long exist, particularly by those nervously disposed, at ten parts, while ill effects are felt when this reaches twelve parts, and fifteen to twenty parts may be considered serious. The loss of the sense of smell is not uncommon when the air contains over twelve parts in ten thousand so that the conditions may not be so apparent to the occupant of the room.

The last report of the New York State Factory Inspection Department makes the surprising statement that thirty to forty parts was not uncommonly found in factory lofts, and that one place was found where fifty parts CO_2 were present, but these conditions can be called nothing less than shocking.

It may be well to explain that CO_2 in itself is not a poison. Its presence in the air may be taken, however, as a direct indication of the condition of the air.

A surplus of this gas can only be prevented by positive methods of removing the vitiated air, associated with a method of replacing it with a sufficient amount of fresh air which must be warmed during cold weather. The exact amount of fresh air required may depend somewhat upon local conditions or the cubic feet of space per occupant, and with reasonable exactness, may be mathematically determined. Certain definite standards as regularly accepted by engineers are given below.

Cubic feet of air to be supplied per minute per occupant:

School rooms	30
Theaters	15 to 30
Churches	15 to 30
Hospitals, ordinary wards	40 to 60
,, surgical wards	60 to 100
,, contagious wards	100 to 150
epidemic conditions	100 to 150
operating room	100

These figures may be more or less modified by local conditions or by limitation of the amount of air that may be introduced without drafts. This latter condition, and sometimes financial considerations, have commonly limited the air supplied to theaters and churches to the minimum amount named above. The amount of air required to be introduced into hospital wards heated by an indirect system is often determined by the heating requirements, and as a rule should not be less than an amount per hour equal to four and sometimes six times per hour the cubic feet of space in the rooms, in other words, four to six changes of air per hour.

It is not best to introduce fresh air into the toilet and bath rooms, kitchens, serving rooms, service rooms, laun-

dries, etc., in hospitals, but there should be removed therefrom an amount of air equal to not less than four changes per hour, and this may be increased to six or eight changes per hour in the case of large kitchens. will be replaced by air drawn from the corridors, etc., and the danger of odors passing to the patients' rooms will be reduced to a minimum because of the direction of the movement of the air.

While the above may be accepted as a general rule, it must be borne in mind that these figures as to air supply are to be modified in some cases by a proper consideration of the occupant of the room, his condition, the cubic feet of space per occupant, the extent of wall surfaces, quality of the air, its temperature, humidity, etc.

It is a safe rule that pure air should be supplied in the maximum rather than in the minimum quantity tolerable, the natural limits being the matter of drafts, cost of installation, and the cost of operation, all of which must be given careful consideration. Drafts are quite as serious as ordinarily vitiated air. By special means of diffusion of the entering air, it has been found possible to make as many as twelve changes of air per hour in an occupied room without causing drafts, which is more than is ordinarily required. The use of such diffusers is not always permissible.

In determining the method to be used in the warming and ventilating of a hospital building one of the first questions to be determined is whether a steam or hot water system shall be used.

The objections sometimes raised against steam heating systems are largely removed by the use of an automatic temperature controlling system, or by the use of the newer systems of graduated hand control of the radiators, such as the Thermograde or Webster Modulation systems, by means of which a small or large amount of steam is admitted to the radiator, and thus a small or a greater amount of heat is obtained therefrom. The use of these systems increases the economy of the steam system, making it without doubt more economical in operation than the hot water system.

The steam system is particularly suitable for hospital warming and ventilating because of its quicker response to changes in temperature and sudden demands for heat, and the avoidance of such objections as may be raised to a hot water system, which would include difficulty of controlling in accordance with sudden changes in temperature, the larger radiators and pipes required, danger of serious results in case of a leak, the greater danger of serious breakdowns, and of serious results therefrom, and the extra cost of installation.

The discussion of possible methods of hospital warming and ventilation will therefore be largely confined to the details of a steam system.

The best system for this work will be that which makes use of direct radiation in certain portions of the building and indirect heating in other portions. A system using direct radiation only is not excusable from any standpoint as it entirely eliminates ventilation. A system using direct radiation with flues which are intended to withdraw the vitiated air is no more satisfactory, as it much resembles an attempt to withdraw air from a bottle and results in little or no ventilation but plenty of very objectionable drafts.

A system which makes use of direct radiation in the corridors, toilet rooms, bath rooms, service rooms, duty The heating of such rooms should be provided for by direct radiation. The air withdrawn from such rooms rooms, kitchens, etc., with indirect heating in the private rooms, wards, operating rooms, and other rooms used for medicinal or surgical work will be found the most satisfactory.

There are many serious objections to the use of direct radiators in the wards, based on the fact that the radiators, with their pipe connections and valves, are difficult to keep clean and when otherwise than clean they are unsanitary. Wherever used in the hospital they should be supported without legs from the wall and be of such pattern as to give the most space possible between the sections. The Astro pattern or the Pressed Steel radiation is recommended for use in hospital work.

The direct-indirect, or semi-direct, radiator is not suitable for hospital ventilation. Where used it is customary to determine the proper amount thereof by adding twenty-five per cent to thirty-three and one third per cent to the amount of direct radiation that would be used in the same place, there being no better rule for determining the amount required because of the varying amount of service secured from this type of radiator. It is even more unsanitary than the regular direct radiator because of its flue construction and its air connections. Absolutely no dependence may be placed upon the amount of air obtained from this type of radiator. Under the best conditions an average size radiator will furnish not more than enough air for one patient while quite as often no air is introduced by this type of radiator, and it is not uncommon to find the air going out through this radiator, being drawn out by force of the wind current without driving from the side of the building on which the radiator is placed. For the greater part of the time but very little air is introduced by this type of radiator and only at times and under the best conditions is a definite amount of air supplied by direct-indirect radiation. Its use can only be excused on the ground of its low cost of installation.

A system consisting entirely of indirect heating might be considered ideal aside from the cost of installation and the cost of operation, if ample means were provided to insure against breakdowns. Ventilation would be insured, and unsanitary and unsightly radiators would be eliminated.

The best system would seem to be, as suggested above, one in which some direct radiation and more indirect radiation is used.

Many systems of ventilation may be designed for the same building, and extensive experience is required to determine which is best. Enough has already been said to condemn the use of a direct radiation system or one which depends on the windows for so-called natural ventilation.

For a small hospital or even a large one consisting of a group of small buildings, a gravity ventilating system will be found to give very satisfactory results. In this system there should be provided for each room a separate indirect radiator with its casing, which may take the form of a sheet metal stack casing or a brick heating chamber, the latter possibly containing a group of indirect radia-

tors. A direct connection to the warm air flue the full size thereof, and a cold air connection with an area of seventy per cent to eighty per cent of the area of the warm air connection, are required. The warm air connection should contain at the base of the flue a mixing damper by means of which the temperature of the air may be controlled, this damper being operated automatically, if possible, or by hand, from the room above. The cold air connection should contain a tight fitting damper closing against felted stops at an angle of 45° to prevent leakage and noise. Over the inlet to the cold air pipe should be placed a one fourth inch mesh galvanized iron wire screen, painted black, and a number ten iron wire guard may be used in addition, if desired. Both of these air connections should be as short as possible, particularly the hot air connection.

The position of the indirect radiator in its relation to the warm air riser or flue should be such that the cold air, when admitted to the flues by the operation of the mixing damper, will enter the room at the back or top of the warm air current so that it will not fall to the breathing level and be felt as a draft.

The position of the warm air riser or inlet to the room, as well as the method of determining the amount of the indirect radiation, will be referred to below.

The size of the warm air riser is determined by the velocity of the air therein, which will depend upon its temperature and the height of the flue. In the indirect gravity system the temperature of the air admitted is usually limited to about 30° to 40° above the temperature at which the room is to be maintained, it being better to introduce more air, if necessary to secure additional heat, rather than greatly increase the temperature of the entering air. Under these conditions approximately the following velocities may be counted upon in the warm air riser in a gravity system, the outside temperature being zero and the air entering the room at 100° to 110°.

Register placed at floor (first)	120 ft. per minute
" " 8 ft. to 10 ft. above radiator	240 " " "
" " 16 " " 18 " " "	300 " " "
" " 26 " " 28 " " "	380 " " "

Therefore, the amount of air to be supplied per minute in cubic feet, divided by the proper velocity in feet per minute, as above, will give the area of the flue in square feet. It is desirable that the flues should be made as nearly square as possible. If in a large room this involves a very large flue or register it is better to provide two or more smaller flues with a corresponding number of indirect radiators. This division of flues will lessen the liability of drafts due to the movement of a large amount of air at one point.

The removal of the vitiated air in a gravity system is accomplished by a series of ventilating flues of sufficient size to remove approximately as much vitiated air as there is fresh air admitted through the warm air flues and registers. With the outside temperature below 40° above zero a sufficient velocity of the air in properly sized and constructed flues is usually secured without the use of accelerating or aspirating coils, but with the outside temperature above this it is necessary to make use of accelerating coils placed either in the flue just above the register opening or in collecting chambers in the attic, preferably in the former position because the velocity of the air in the flue depends on the height of the column of the hot air, this being measured from the position of the coil to the top of the flue. The velocities thus secured in the vent flue will depend on the extent to which the temperature of the air passing through the flue exceeds the temperature of the outside air. Thus when the temperature of the outside air is high, approaching the temperature of the air in the room, it is necessary to use these accelerating coils to increase the temperature of the air in the flue. Ordinarily an amount of radiating surface in these coils which will raise the temperature of the air passing through the flue 20° is sufficient, in which case velocities approximately as given in the table below will be assured when the inside and outside temperatures are nearly alike, with an increasing velocity as the outside temperature lowers.

The velocity of the air in a vent flue, with the air therein warmed 20° above the temperature of the outside air, is as follows :

Height of flue above coil 10 ft.	153 ft. per minute
" " " " " 20 "	216 " " "
" " " " " 30 "	264 " " "
" " " " " 40 "	306 " " "
" " " " " 50 "	342 " " "
" " " " " 60 "	378 " " "

To determine the amount of accelerating surface required, multiply the number of cubic feet of air to be exhausted per hour, by the number of degrees which its temperature must be raised (usually 20°), divide the result by 55 and then divide this quotient by the number of heat units obtainable from one square foot of surface in the accelerating coils, which is approximately as follows :

Height of flue above coil 10 ft.	290 heat units
" " " " " 20 "	305 " "
" " " " " 30 "	334 " "
" " " " " 40 " and above	400 " "

Ordinarily when the height of the fresh air and vent flues measured from inlet to outlet is equal the same size is made use of in both flues.

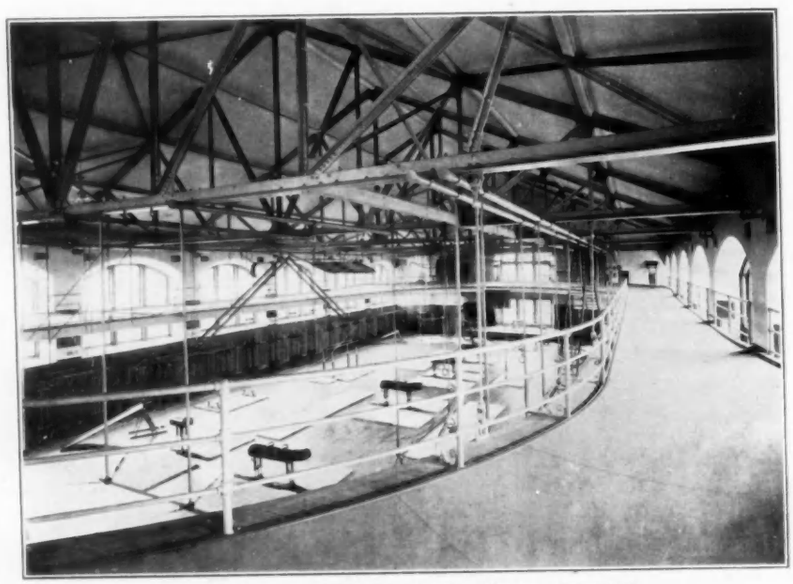
The only objection that is ordinarily raised against the gravity system in small or medium size buildings is its dependence upon weather conditions, but this objection may be overcome by skilful designing, in which a careful determination of the size of the flues, amount of indirect radiation, and the amount of surface in accelerating coils plays an important part.

Quite as important is the proper construction of the fresh air and vent flues and risers, the inside of which must be made smooth, whether of metal or brick. The turns or bends therein must be gradually made and such bends or turns should be as few as possible. In the case of brick flues the joints should be carefully made and the surface of the flue should be either smoothly plastered or given a good brush coat of thin cement mortar. The top of the flue as it turns into the room should be rounded, and the brickwork at the bottom of the opening should be chamfered off on the inside.

Gymnasiums—Their Plan and Equipment—V.

BY M. B. REACH.

IT SEEMS to the writer that of all forms and types of buildings designed for gymnasium and recreative purposes the modern municipal building is worthy of greatest study and most careful execution. Calling, as it does, for all the qualities of other buildings and institutions where such features are incorporated, it presents many additional problems that the others lack, and its scope of work is so infinitely broad that the problems of construction and selection confronting the architect must call for the best there is in him. While my articles supposedly are confined to the subject of gymnasiums and their epuipment, there are so many companion features in a public institution of this kind, and the relationship of work is so close and in a way interdependent, I find myself called upon to consider them in their broad relation and to some extent treat of the building as a perfect whole. Albeit my treatment of foreign subjects must be cursory and superficial in the extreme.



GYMNASIUM, COLLEGE OF THE CITY OF NEW YORK.
Showing running track.

As intimated in my preceding article, the fundamental reason of an institution of this character is a relief to conditions of life in our congested districts, and life is made up of men and women, boys and girls, and for purposes of differentiation, babies. Each element of that group should be provided for in some way or another every day, sufficient in period to make practical results possible, interest permanent, and the investment pay.

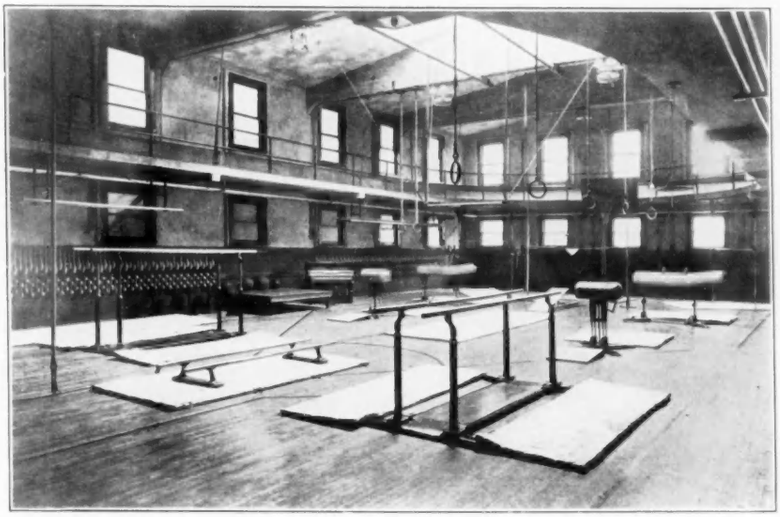
I am speaking now of the municipal gymnasium building set down in the heart of a congested city district. This class of people all have a well developed capacity for fun and recreation, and to provide features for one and not the other is not only unfair but must *seem* so to those left out. I think, of course, that primarily the building should be designed largely for the younger set, but provisions for older people included also. I further believe that there is immense value in the principle of "keeping things moving." If for instance certain prescribed hours prevent girls or boys from using the gymnasium, provide a counter attraction. Have some place for them to go in the building at any time during childhood's natural hours.

A summary of features incorporated in various municipal gymnasiums and baths shows a wide variety of departments of utility and pleasure. We find pools, showers, lockers and dressing rooms, club rooms, library, gymnasiums, play rooms, sewing, nursery, assembly hall, playground, indoor games, roof garden, laundry—truly a goodly assortment of attractions. In the specifications of one bath house referring to the laundry we find that . . . "The largest part of the laundry is for public use, and will accommodate three women at one time, each being provided with two earthenware wash trays, hot and cold water, steam wringer and steam dry room space. The steam dry room is constructed entirely of metal and contains twenty racks. One corner is set aside for the laundry machinery for washing towels. This consists of a 46 inch rotary washer and a centrifugal extractor." It being asserted that many homes among the poor were inadequate to permit of a large family washing without the greatest inconvenience, cleanliness and health were sacrificed to the conditions of environment. The boy who finds it troublesome to wash his face usually has a dirty face. The inference is plain.

Undoubtedly the gymnasium, pool and showers form the nucleus around which the rest of the building is constructed. The details of the latter form a separate study beyond my ken and I will, therefore, avoid any extended reference to the many problems of heating, ventilating, etc. The live steam system of heating pools is adopted in many I know of as being quick, economical, and efficient. In Cleveland the showers of a bath house visited are heated by automatic gas heaters and said to be very satisfactory. It sounds like a good summertime proposition. The free public bath of St. Louis (H. W. Powers, architect), plans of which accompany this issue, have been freely commented upon as being very good. The construction comprises brick carrying walls and reinforced interior with white enameled brick upon the front elevation.

The interior arrangement provides on the top floor

eighty marble showers (hot and cold combined) arranged for men and women separate; the second or mezzanine floor (hung from the top floor) provides for the necessary dressing rooms and a running shower as an equipment to the pool.



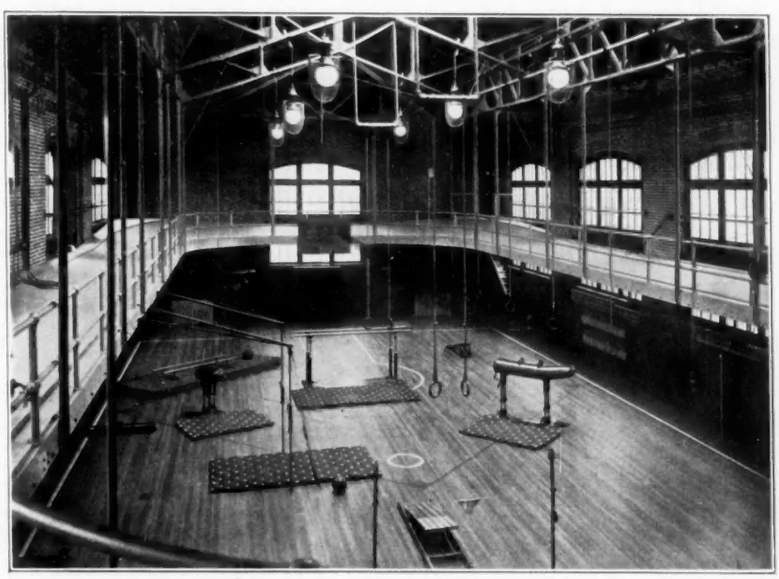
GYMNASIUM, Y. M. C. A., BROOKLYN, N. Y.
Showing running track.

The basement floor provides a boiler, coal, and storage tanks for heating the shower water as well as the swimming pool, the water of which is heated by one large cast-iron American Radiator Boiler, which circulates the water through boiler and pool until the desired temperature of 80° is reached.

The walls of the pool were made of reinforced concrete 7 inches thick and provided with skim and gangway drains. The entire inside was plastered with medusa white cement and troweled smooth. Thus far no leaks have been apparent.

It is, of course, desirable to have a separate set of showers for the pool, preferably placed so that access to the pool be made through the showers. As a supplement to a skim drain a gargoyle might be placed at one end, spraying the surface of the pool and keeping the top water working toward the drains. I recall seeing a very unique shower bath arrangement used by Mr. Ernst Hermann, in the gymnasium operated by the T. G. Plant Company of Boston for their employees. The dressing rooms for women had a detachable curtain which also fitted the entrance to the individual showers. This curtain wrapped around the body served as a robe in passing to and from showers and hooked into place effectively screened the occupant of the booth. There were sixty dressing rooms and a corresponding number of showers, the bathing being done in classes like regular gymnasium work. I believe that the best shower is that which hits the body obliquely and not from directly overhead.

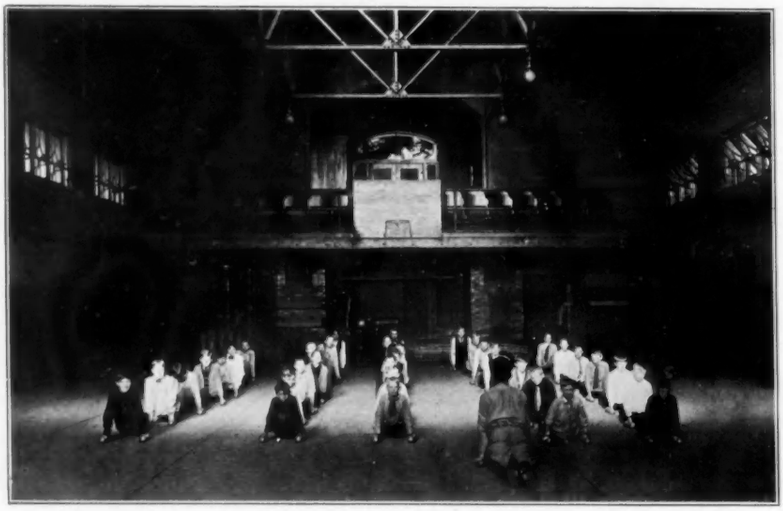
In a large municipal building of the class described it possibly would be found expeditious to have one large sized gymnasium rather than two small ones, particularly so if suitable play rooms and other features were provided. In smaller buildings, such as are usually found in connection with playgrounds, I favor the segregation of the work for opposite sexes. The type of building used in the Lincoln Park System of Chicago, or South Park, Chicago, seems to be that usually adopted by various park departments and architects as appropriate. Separate club rooms for boys and girls, assembly hall, library as a branch of the City Public Library, showers, lockers, and gymnasiums, in connection with a well equipped athletic field and playground all serve to beguile youth from the streets and start a better man or woman for the community.



GYMNASIUM, GEORGETOWN UNIVERSITY, WASHINGTON, D. C.
Showing running track.

Fig. 24 shows a suggested equipment and floor plan for a municipal gymnasium in Boston, Newhall & Blevins, architects. The list of apparatus is as follows:

Twenty sections bar stalls, twenty bar stall benches, twelve chest machines, two No. 79 horizontal and vaulting bars, two No. 0 vaulting horses, two No. 0-B vaulting bucks, two



GYMNASIUM, SEWARD PARK, CHICAGO.

No. 78 parallel bars, two pair No. 119 jumping standards, two No. 58 spring boards, four No. 25 jump boards, one No. 28 incline board, one hydraulic rowing machine, six traveling rings, No. 126, 2 pair No. 125-A flying rings, two suspended horizontal ladders, twelve No. 98 climbing ropes, six No. 212 rope ladders, six climbing or sliding poles, one striking bag disc, two giant strides, six 5 feet by 10 feet by 2 inch mats, two 3 feet by 10 feet by 2 inch mats, six 5 feet by 6 feet by 2 inch mats, fifty pair three quarter pound dumb bells, fifty pair one pound dumb bells, fifty pair three quarter pound Indian clubs, fifty pair one pound Indian clubs, four steel locking cabinets, four dozen nickeled steel wands, four dozen wood wands, three locking wand racks, four dozen bean bags, one bean bag cabinet, four dozen short skipping ropes, one half dozen long skipping ropes, two medicine balls, No. 1, two medicine balls, No. 2, two medicine balls, No. 3, one steel cabinet for storing game apparatus.

In Play Room.

One pair basket ball backstops and goals, two official basket balls, one children's slide, four see-saws, infant hammock, and box chair swings.

The gymnasium is of excellent size and offers good opportunity for a nice running track. The bar stalls are placed along the edge of running track, serving as a cage to protect wall apparatus behind when games of various kinds are in progress, and also forming a partition behind which the various pieces of floor apparatus may be moved when it is desired to clear the floor.

The hand ball court in this particular instance is a strong feature of attraction and seemingly worthy of the space given. I think, however, this is a local condition, and in many cases space could be saved for other purposes by curtailing the regulation size of the court. The provision of the play room on the side is a good one, and if this can be also utilized for mothers to bring their sewing to while their infant is at rest and happy in a hammock swing particularly designed for his use, a worthy and desirable feature is added.

So far as apparatus is effected, great ceiling height in a play room as shown is unnecessary. Children's swings if attached to a frame out of doors would range from 8 to 10 feet high. A room of this description will ofttimes be crowded, however, and means suitable to provide a healthful amount of oxygen should be provided. Presumably from my standpoint a ceiling of 14 to 15 feet high would seem a happy medium. There is not certainly the same hard and fast rule that obtains in gymnasium equipments.

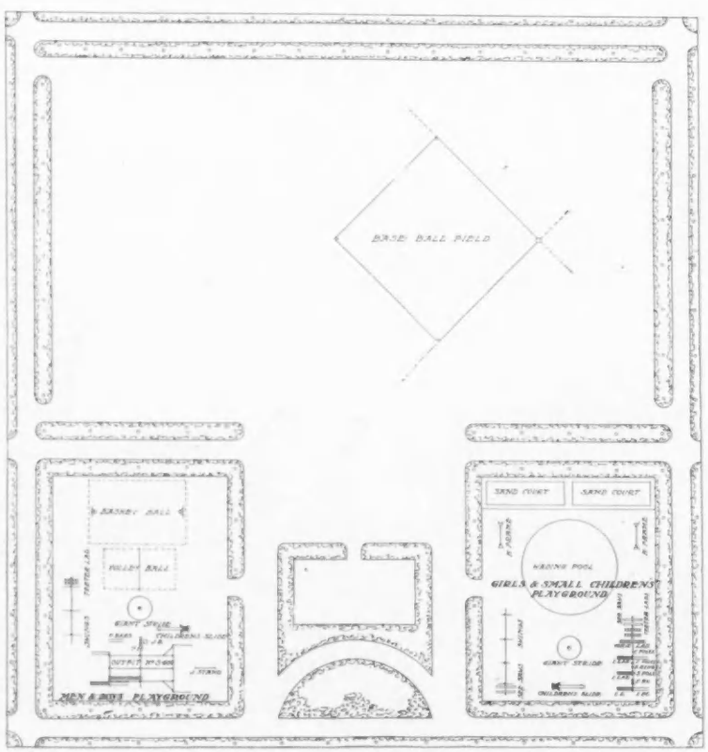


FIG. 23. PLAN FOR PUBLIC PLAYGROUND.

If a separate room is proposed for basket ball, volley ball, etc., I would recommend a ceiling height of 16 feet as a minimum standard.

The floor plan of the gymnasium at Seward Park, Chicago, — Perkins & Hamilton, architects — illustrated

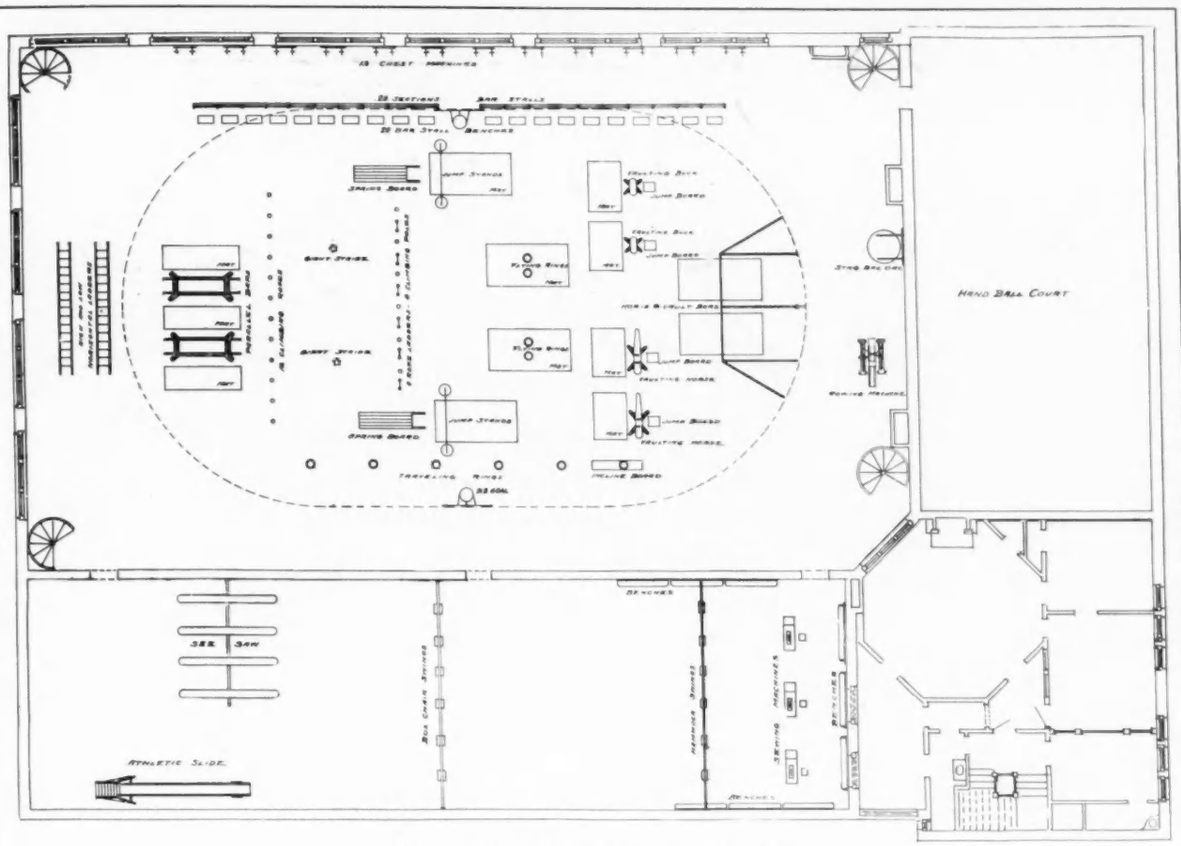


FIG. 24. PLAN FOR MUNICIPAL GYMNASIUM.

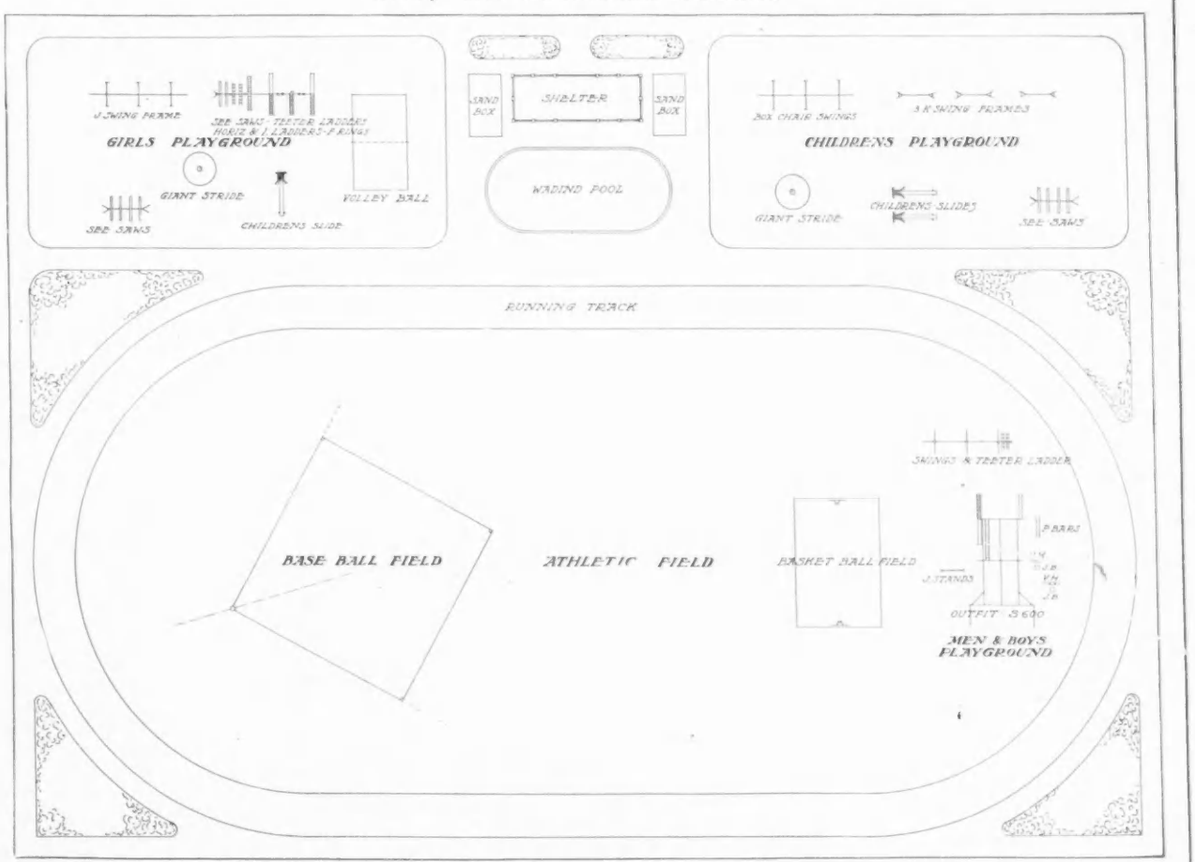


FIG. 25. PLAN FOR PUBLIC PLAYGROUND.

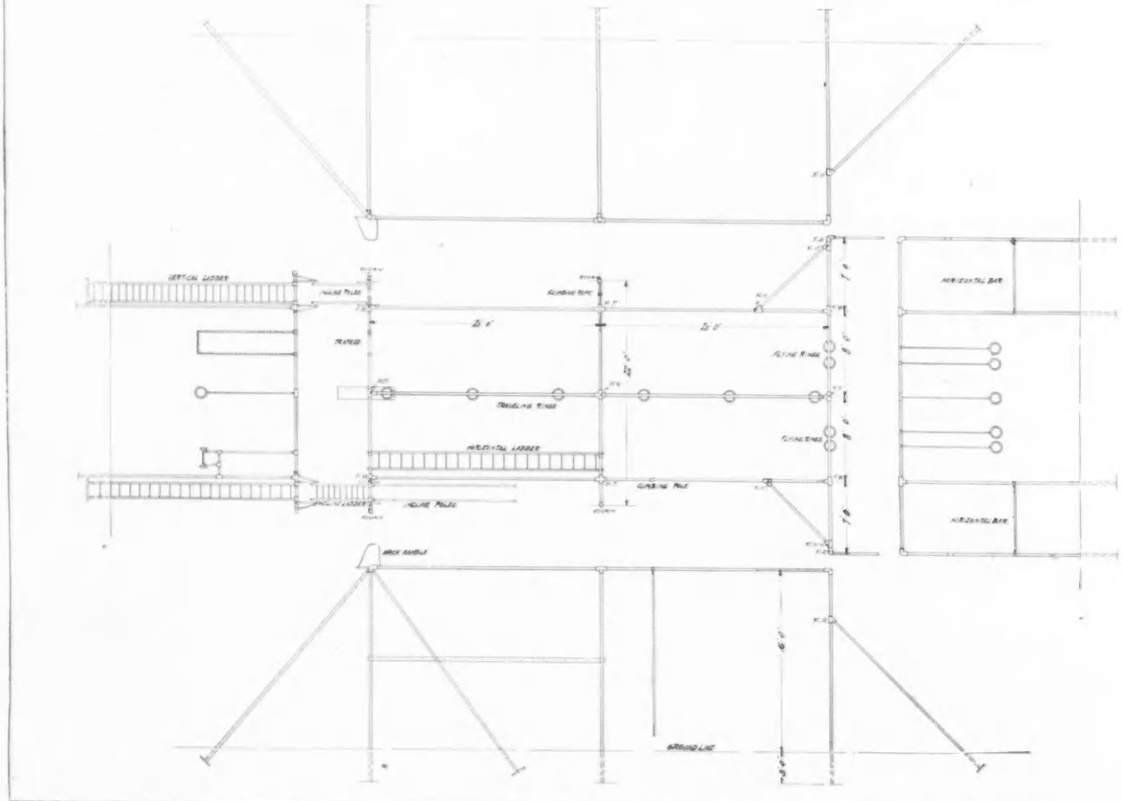


FIG. 26. TYPICAL LAYOUT FOR PLAYGROUND.

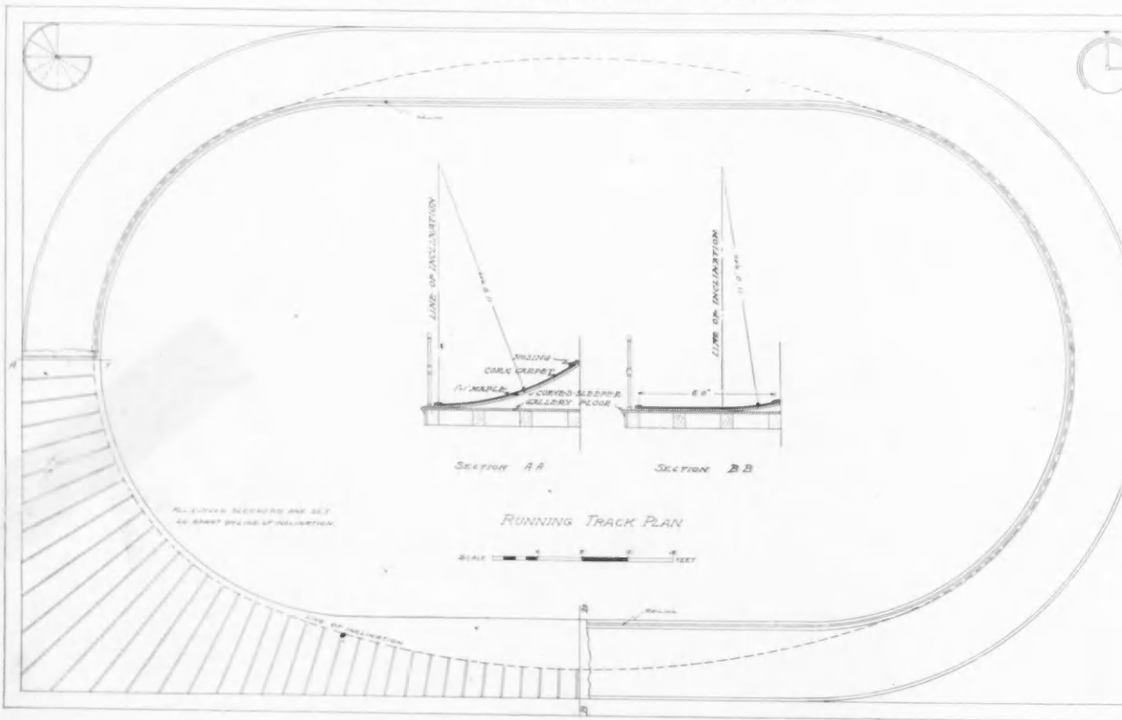


FIG. 27. PLAN FOR RUNNING TRACK.

in preceding article, is to my mind representative of the type of building appropriate to the playground work. The separate equipments in gymnasiums for girls and boys would approximate the equipment shown and described under school gymnasiums.

Figs. 23 and 25 may be accepted as properly belonging to this article typifying playground layouts; there being a never ending variety of frames in their various combinations of apparatus. I will not attempt to cover this field, but merely show one of a popular combination, Fig. 26. The framework is made of 3-inch pipe 16 feet above ground, usually grouted to a depth of 3 feet, although in loose soil this had better extend to 4 feet. Girls' frames are 14 feet above ground grouted to the same depth under. Playground apparatus and equipment may be selected with the thought in mind that the child using it is a reincarnated monkey, bird, or fish, and that selection will be popular. Apparatus that affords climbing, as ladders in various combinations, or swift motion as in swings, sliding, etc., or wading pools, all charm the child and hold its interest day in and day out.

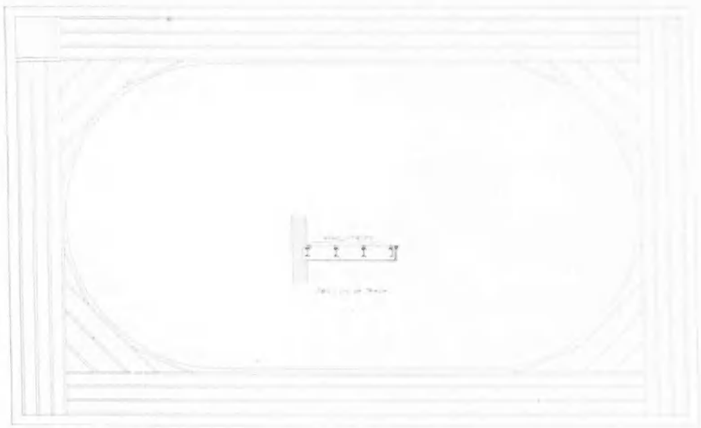


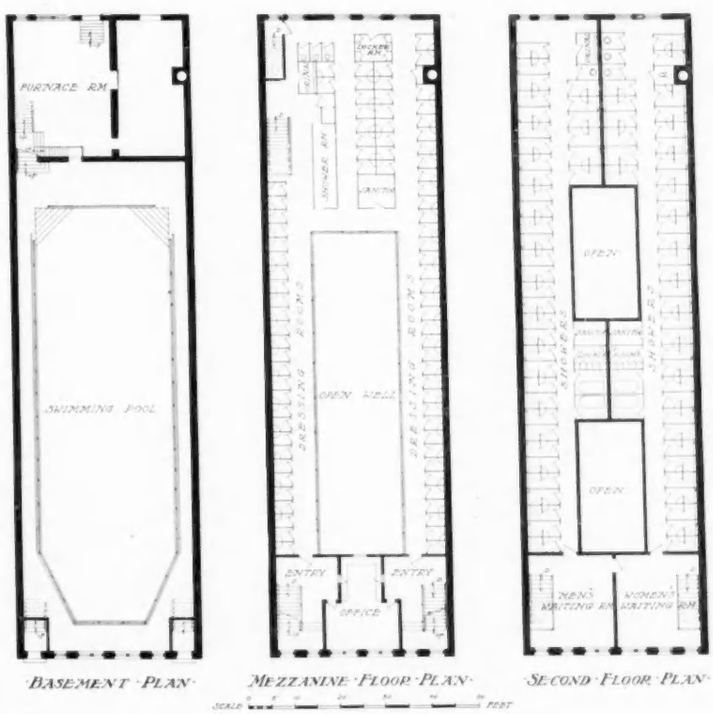
FIG. 28. SHOWING CONSTRUCTION OF RUNNING TRACK.

RUNNING TRACK.

(Fig. 27.) The best shape and fastest indoor running track is that having the oval ends. Obviously, however, this form of track can only be used successfully in the gymnasium of ample accommodations as it cuts so into the space of the room. If (and this conjunction is as usual important) the gymnasium room is of sufficient size for its purpose, I would recommend a track at least 6 feet wide. In the case where the work in the gymnasium is curtailed the lesser feature (i.e., track) must be sacrificed. The question of banking can but be treated in individual cases. My company and any other standard company of merit prepare such plans for architects without charge. In designing a four-cornered track care should be taken to avoid getting the corners too sharp. I think a 15 foot radius as small as it is desirable to use.

Most tracks nowadays are suspended from overhead at their outside edge. This seems to be the generally accepted form of construction. The suspension rods should be outside the gallery rail, which may, if desired, incline outwardly although I do not hold this necessary or even desirable if the track is made sufficiently wide in the first place.

As it is not recommended to lay a track cover on a cement surface, owing to depreciation in the life and resiliency of the track and its counteracting effect on the runner, buildings of cement construction should provide in their plans timbers embedded in cement as shown in Fig. 28, to which the concaved superstructure may be anchored. Imported cork carpet at least $\frac{5}{16}$ inch thick serves as the best sort of track covering. This should be thoroughly stretched before putting down and held in such way as to permit some come and go to prevent track bulging when used a while. It is always well to provide a sliding pole, preferably brass tubing $2\frac{3}{4}$ inches in diameter, $\frac{1}{8}$ inch walls, as a quick means of descent from the track—the sliding pole "well" to be protected with railing. In the case of high ceilings the top of pole may be braced as shown in plan, 6 or 8 feet above track.



PLANS OF PUBLIC BATHS AT ST. LOUIS.

NOTE. This instalment concludes the series of articles by Mr. Reach treating of "The Gymnasium." Architects in need of information of a special nature regarding gymnasium equipment may obtain it by addressing M. B. Reach, care A. G. Spalding & Bros., Chicopee, Mass.—EDITOR.

Competition for a House to be Built of Terra Cotta Hollow Tiles.

REPORT OF THE JURY OF AWARD.

THE competition was for a house to be built of Terra Cotta Hollow Tiles, to be covered upon the exterior by either stucco or brick. The problem was a thoroughly practical and modern one with simple direct requirements, clearly stated and of such a nature as to be easily met. It was such a problem as to-day engages the attention of many architects and owners. Out of many sets of drawings submitted to the jury nearly every one had exceptionally good qualities, and designs were well stated and invariably well drawn.

Terra cotta block architecture demands absolute simplicity of treatment and does not lend itself readily to vagaries in design, either as to mass or detail. The material limits expression to a greater extent than almost any other material in use to-day, with the possible exception of concrete. The designs submitted reflected clearly the growing grasp of architects and designers upon terra cotta as a building material, which we are rediscovering and adapting to everyday uses.

First Prize. A charming design, beautifully planned and proportioned in its parts and finely expressed as to its elevation. The author had a clear conception of the mass of his house as a whole, and of the material he was to use in constructing it. Simple, direct, and clean cut, the design answered perfectly the basis of criticism established by the program as to its fitness, adaptability, and relative beauty. In the elements of the plan the rooms were finely arranged; the chimneys as an important part of the design were most effectively placed, both as to plan and elevation; the roof, while simple, was sufficiently cut up to give gables on the exterior, where they are of great aid to a design. In short, it was almost an ideal development of the problem, and one of which the designer may be proud.

Second Prize. This design was remarkably like the first as to plan and was as successful in many of the elements considered by the jury. The type of design, as a whole, was less interesting because of the absolute rigid simplicity of the exterior treatment. The plans of the first and second prizes are so similar in elements that they might well have been produced in the same office. It was in the expression of the plan, in the exterior, that the marked difference comes. The "A" Roof, in builder's language, is usually stiff and difficult to treat, and this design would have profited had the author loosened the strings of his imagination a trifle. The charming group formed by the entrance door, porch, trellis, and stair window shows a settled sense of proportion very finely expressed and the whole shows a fine grasp of the principles involved in using this building material.

Third Prize. This design is marked by its adherence to precedence in working up the elevations of a very fine plan. There is a nice distribution of parts well balanced, and the house as built would have a certain class, so called, that would be most effective in certain settings. The design is most adaptable to the material to be used, and with all, is quiet, well balanced, and a bit trim. But for a house of this size and character it was thought that the first and second prize plans expressed, perhaps, a little more freely the ordinary conception of what an American house should be if the designer were not too much influenced by precedent and historic examples.

First Mention. This design was far more pretentious than those preceding, but still well within the province of the terra cotta block building. There were some elements of this design that were of such a peculiar nature that they could have been dispensed with without much damage to the result. The cornice which is applied to the main body of the house and does not extend to the upper line of the house, seems rather to befog judgment of what otherwise would have been a very straightforward and honest expression of the material used. With all, the design was a good straightforward effort, with a fair plan and well proportioned exterior, with the single exception of the cornice, which really detracted from a design which was almost too well presented as to draftsmanship.

Second Mention. Here was a design based upon a plan that was frankly and simply expressed, with a very economical arrangement. The elevation was almost too tense and straightforward, but quite beautifully balanced. Here again one wishes that the author could have loosened his hand a little and allowed his imagination to play such a part with the design that would seemingly leave less of the $10,000 appropriated unexpended. Fitting as to the material to be used, adaptable also, the design was a trifle stiff and labored.

Third Mention. Here the author has erred to the other extreme; here the imagination has been allowed to rule to a charming extent. Planned beautifully, well considered, distinctly possible, well expressed except in the elevation where scale has been run away with. The whole beautifully treated, with an abundance of detail which would tax the ingenuity of any architect to get it built for the money appropriated.

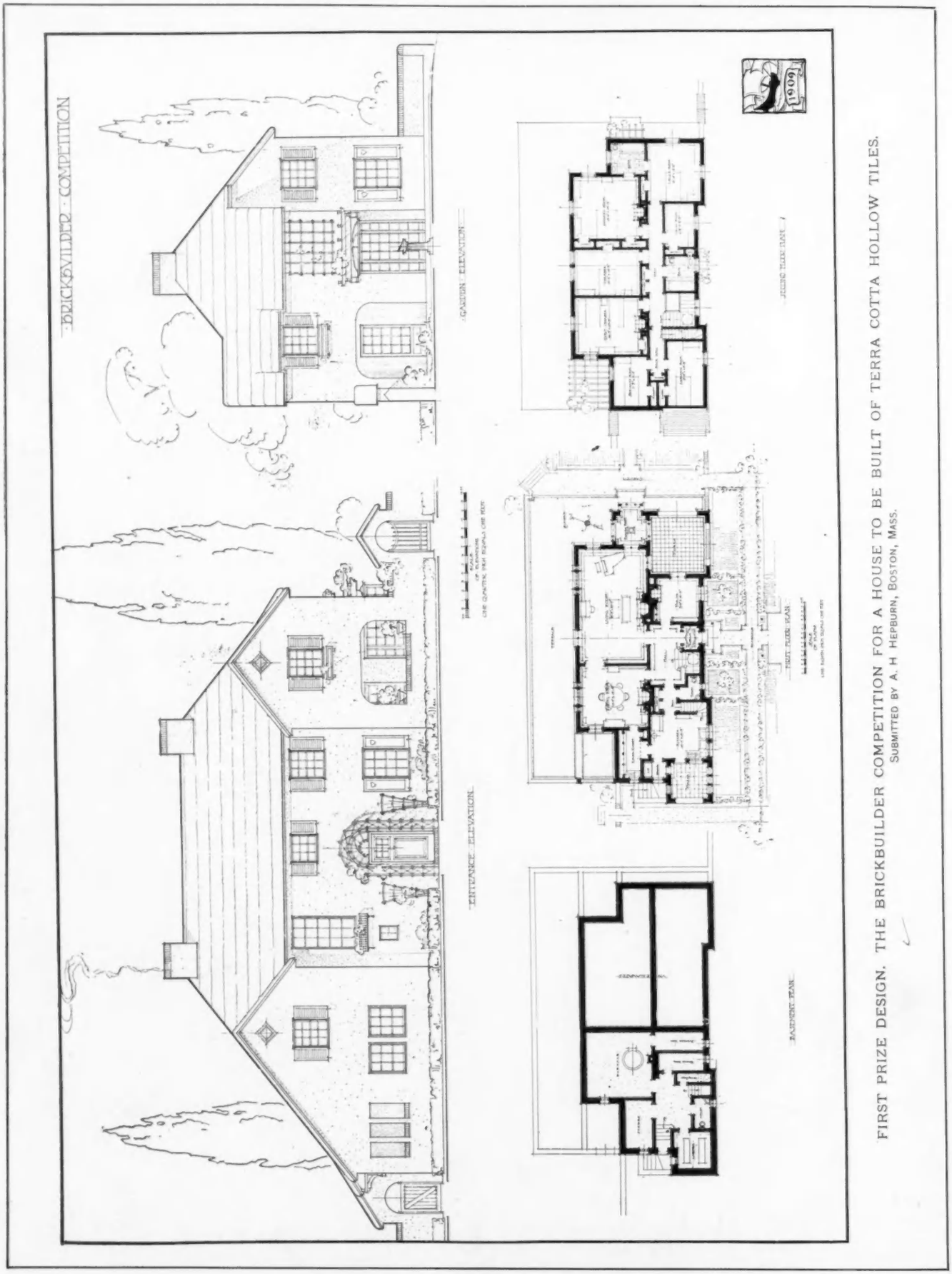
Fourth Mention. This design, based upon another fine plan, well expressed, well balanced, and one such as would make a beautiful house, has been worked up with almost too much modesty and Quakerish expression and suggestion. Such extreme balancing of parts and proportion it would perhaps be well to avoid in a house of this size and type.

Fifth Mention. A rather elaborate but extremely interesting plan and elevation, but it has unfortunately overstepped the problem and has become almost a mansion instead of a house. The purpose seems to be best suited to an Italian climate, and the whole design savors of Italy and is not so outspoken of terra cotta block construction as some of the others. An unevenness in the elevation is caused by the excessive height above the second story windows, which of course lends to the general design, but detracts from the house on practical conditions. It does not seem to come quite so well within the limits of house construction as did the others.

Sixth Mention. A distinct return to the house type, but suggestive of brick architecture rather than terra cotta block. The plan and elevation are quiet and dignified, beautifully treated in detail, and windows and doors well proportioned, the entrance doorway and windows above being especially effective. This design failed, however, in that direct expression of the material used, so well shown in some of the others.

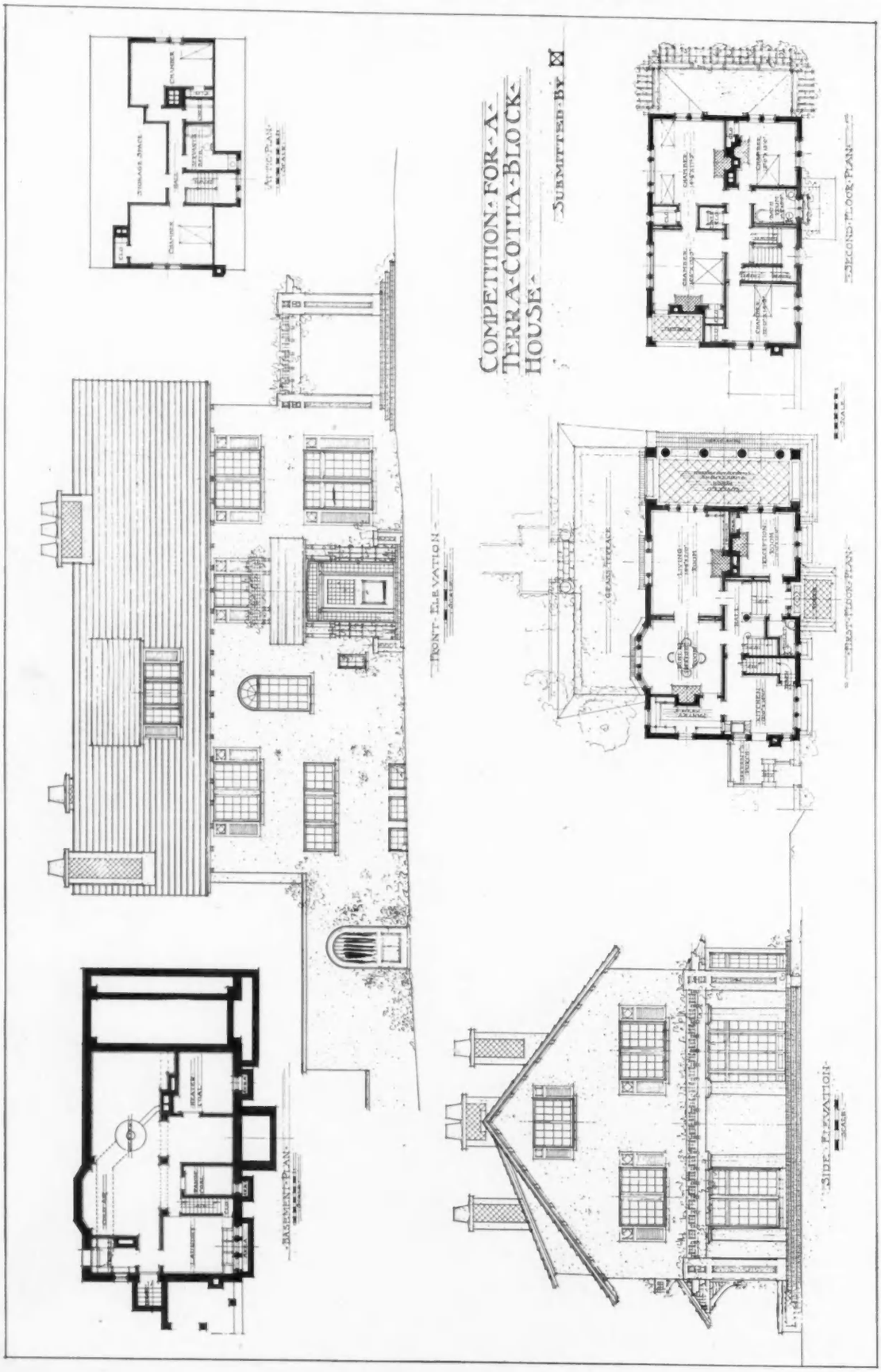
THOMAS FOX,
LOUIS C. NEWHALL,
ADDISON B. LEBOUTELLIER,
JAMES PURDON,
WILLIAM E. PUTNAM, JR.

Jury of Award.



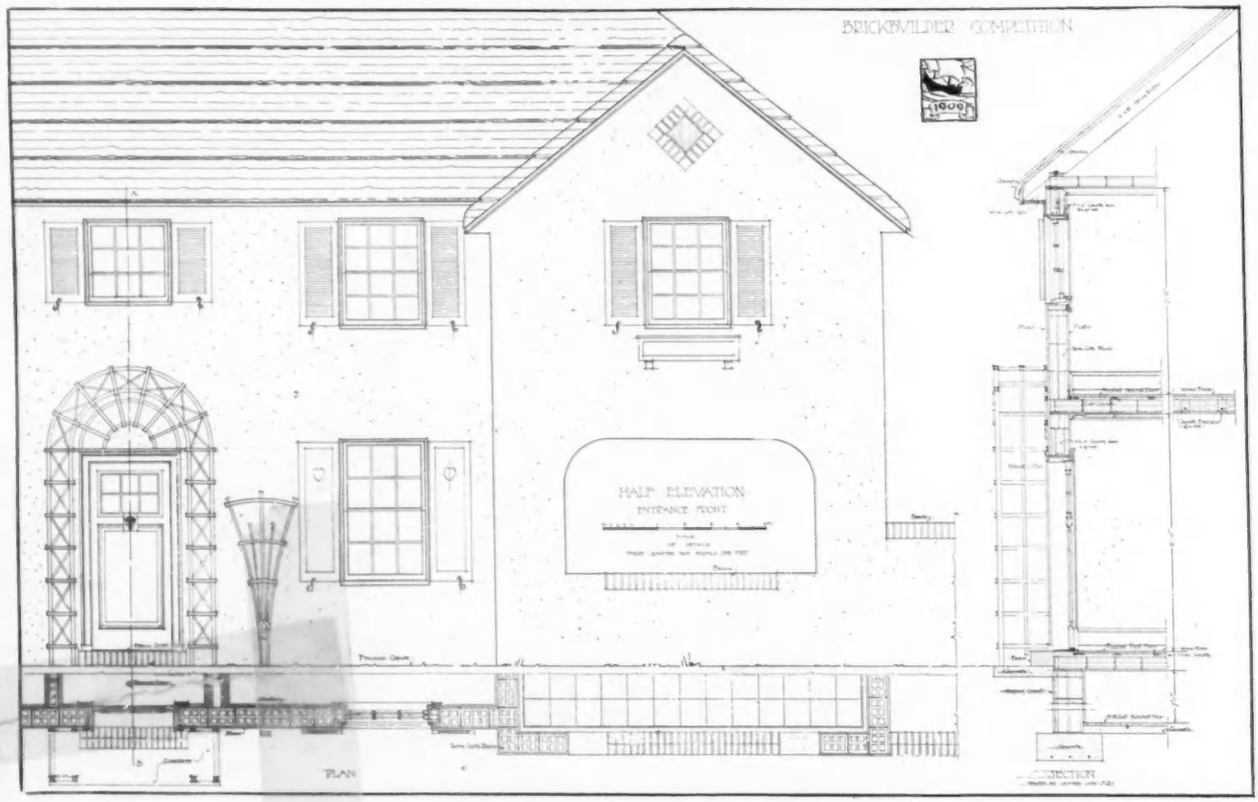
FIRST PRIZE DESIGN. THE BRICKBUILDER COMPETITION FOR A HOUSE TO BE BUILT OF TERRA COTTA HOLLOW TILES.
SUBMITTED BY A. H HEPBURN, BOSTON, MASS.

UNIV OF MICH

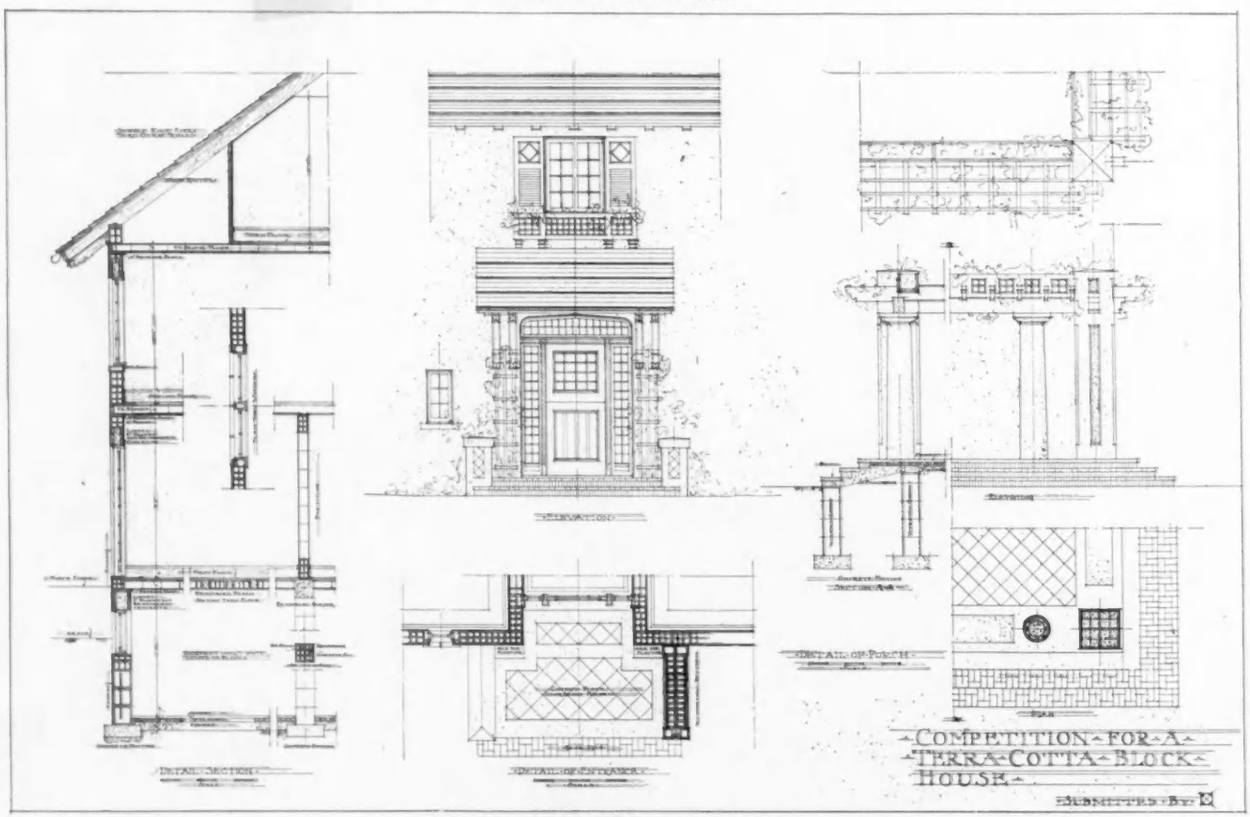


SECOND PRIZE DESIGN. THE BRICKBUILDER COMPETITION FOR A HOUSE TO BE BUILT OF TERRA COTTA HOLLOW TILES.
SUBMITTED BY WILLIAM G. HOLFORD, BROOKLYN, N. Y.

UNIV. OF MICH.



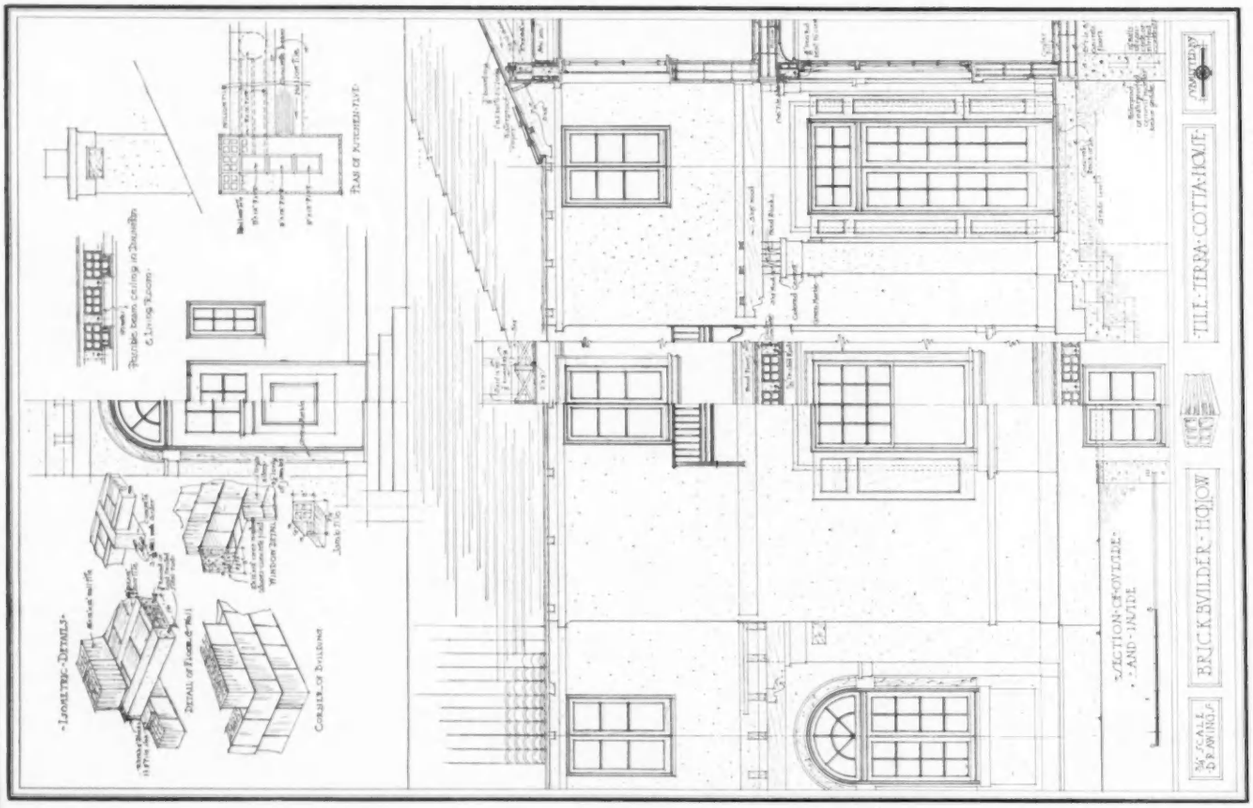
DETAIL FIRST PRIZE DESIGN.
SUBMITTED BY A. H. HEPBURN.

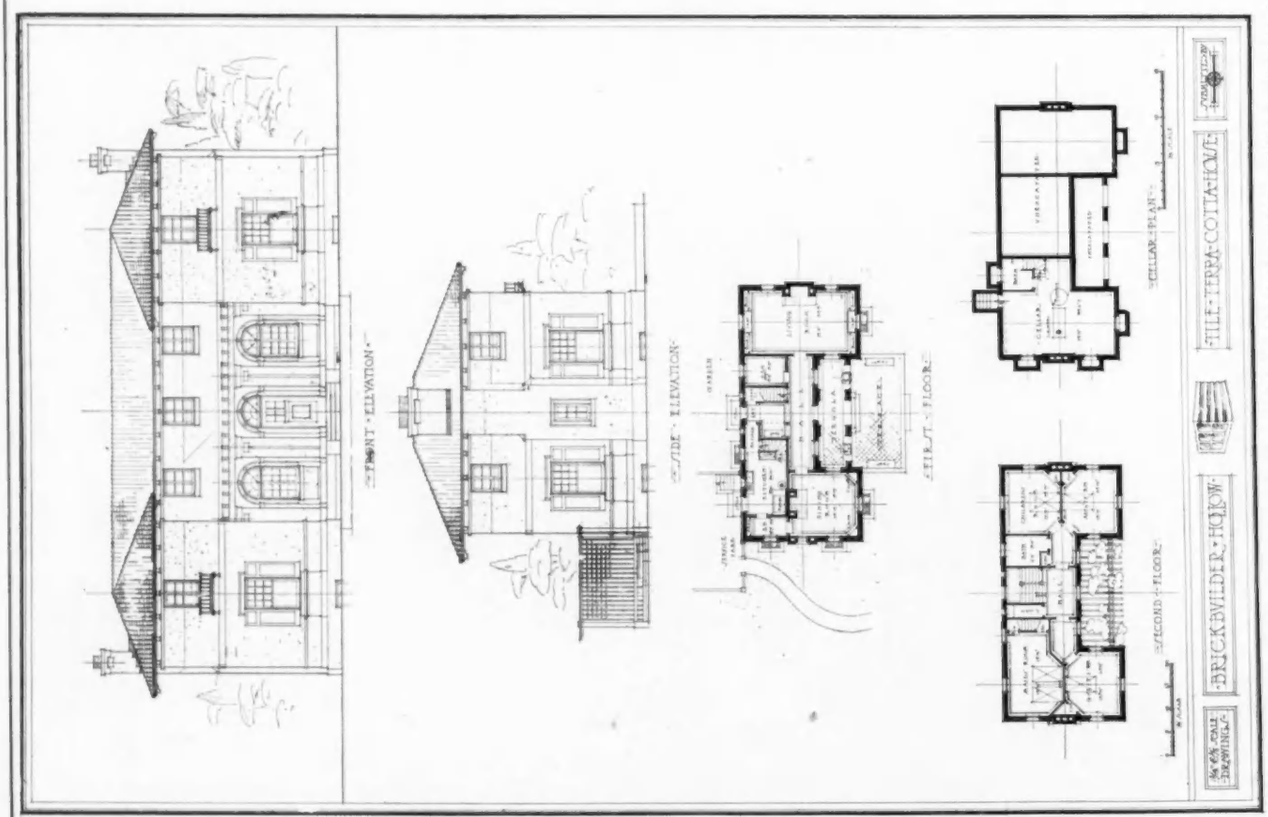


DETAIL SECOND PRIZE DESIGN.
SUBMITTED BY WILLIAM G. HOLFORD.

THE BRICKBUILDER COMPETITION FOR A HOUSE TO BE BUILT OF TERRA COTTA HOLLOW-TILES.

UNIV OF MICH



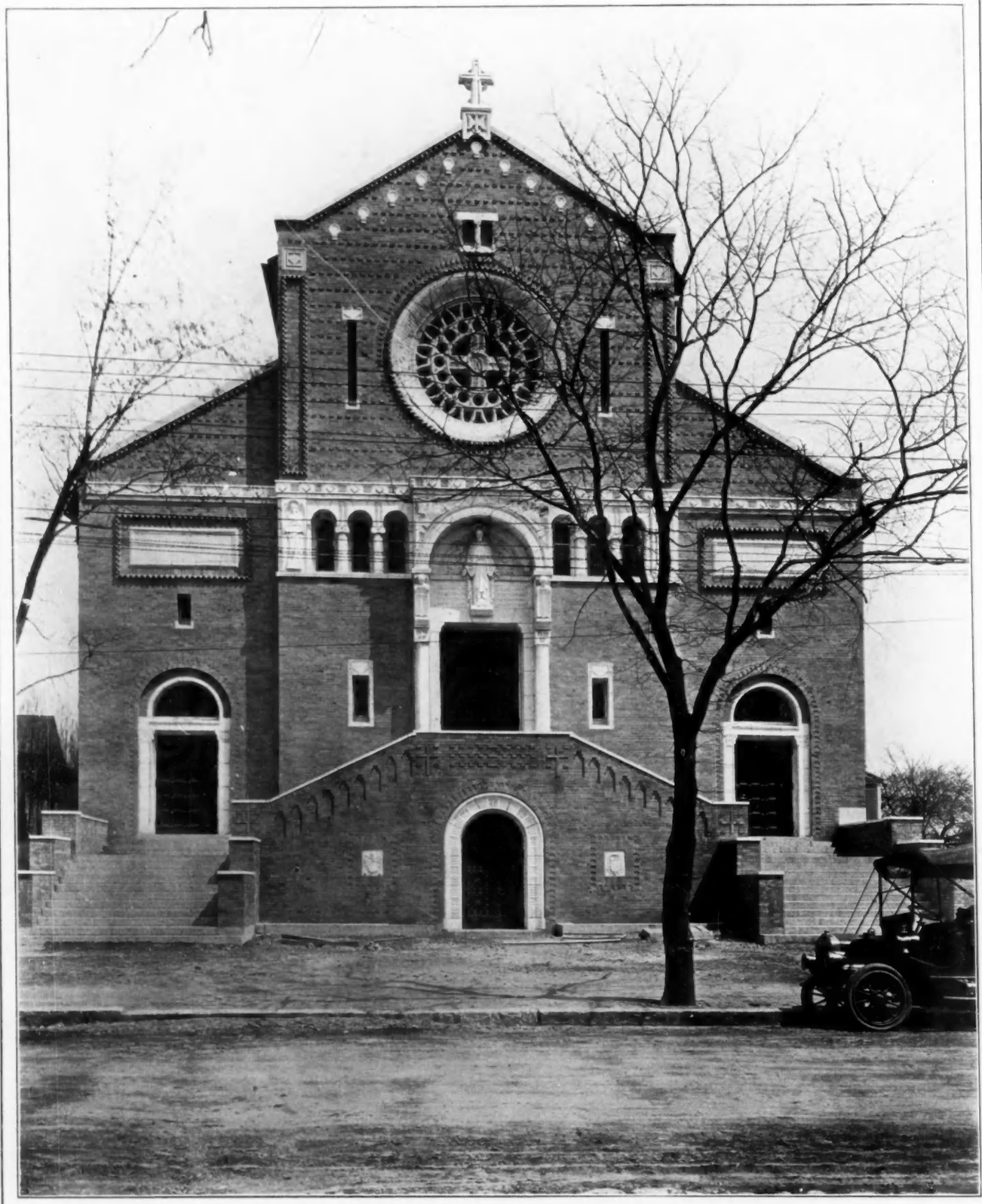


THIRD PRIZE DESIGN. THE BRICKBUILDER COMPETITION FOR A HOUSE TO BE BUILT OF TERRA COTTA HOLLOW TILES.

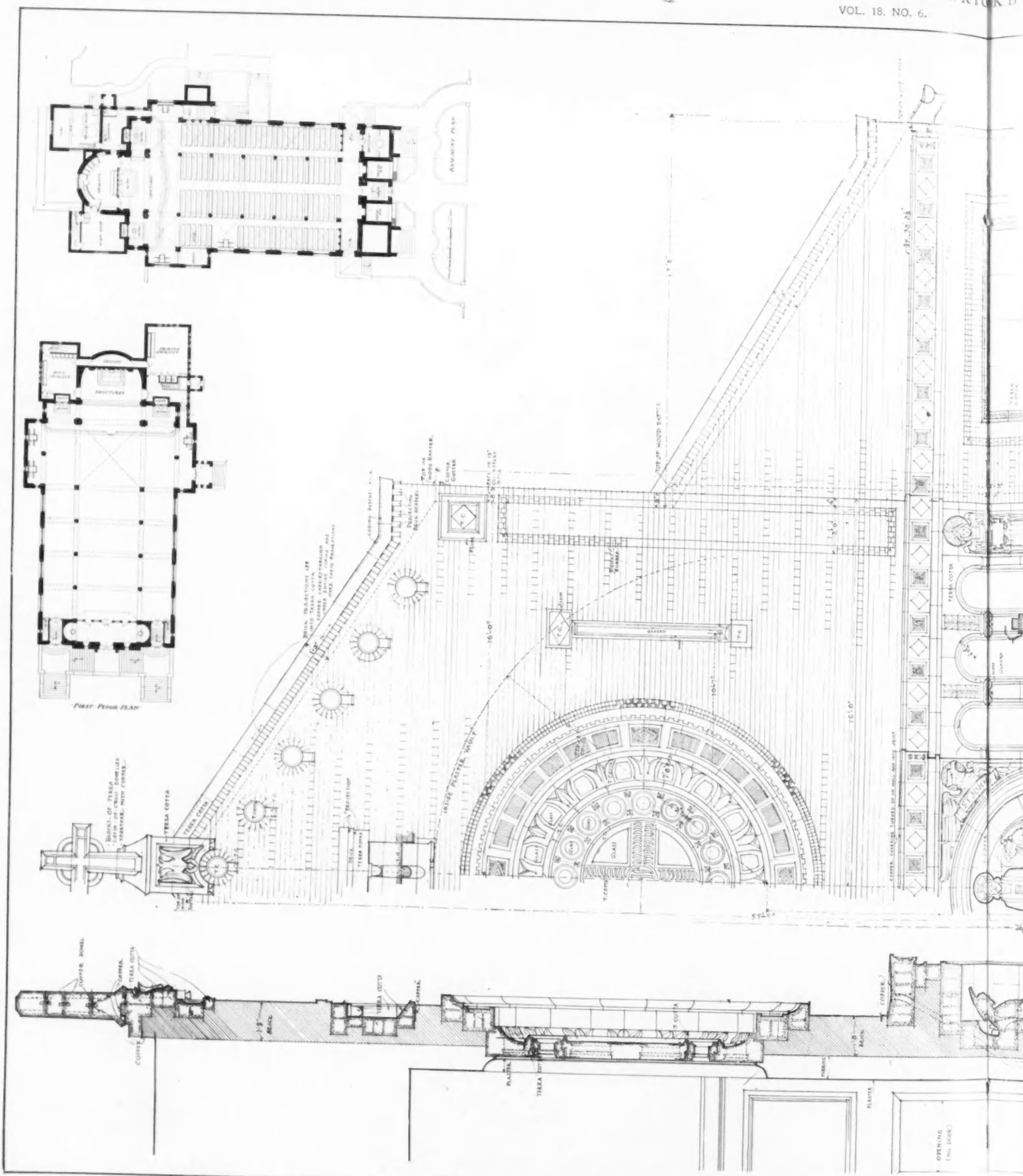
SUBMITTED BY FREDERICK JOSHUA MESEKE AND ALFRED G. WHELLER, NEW YORK CITY.

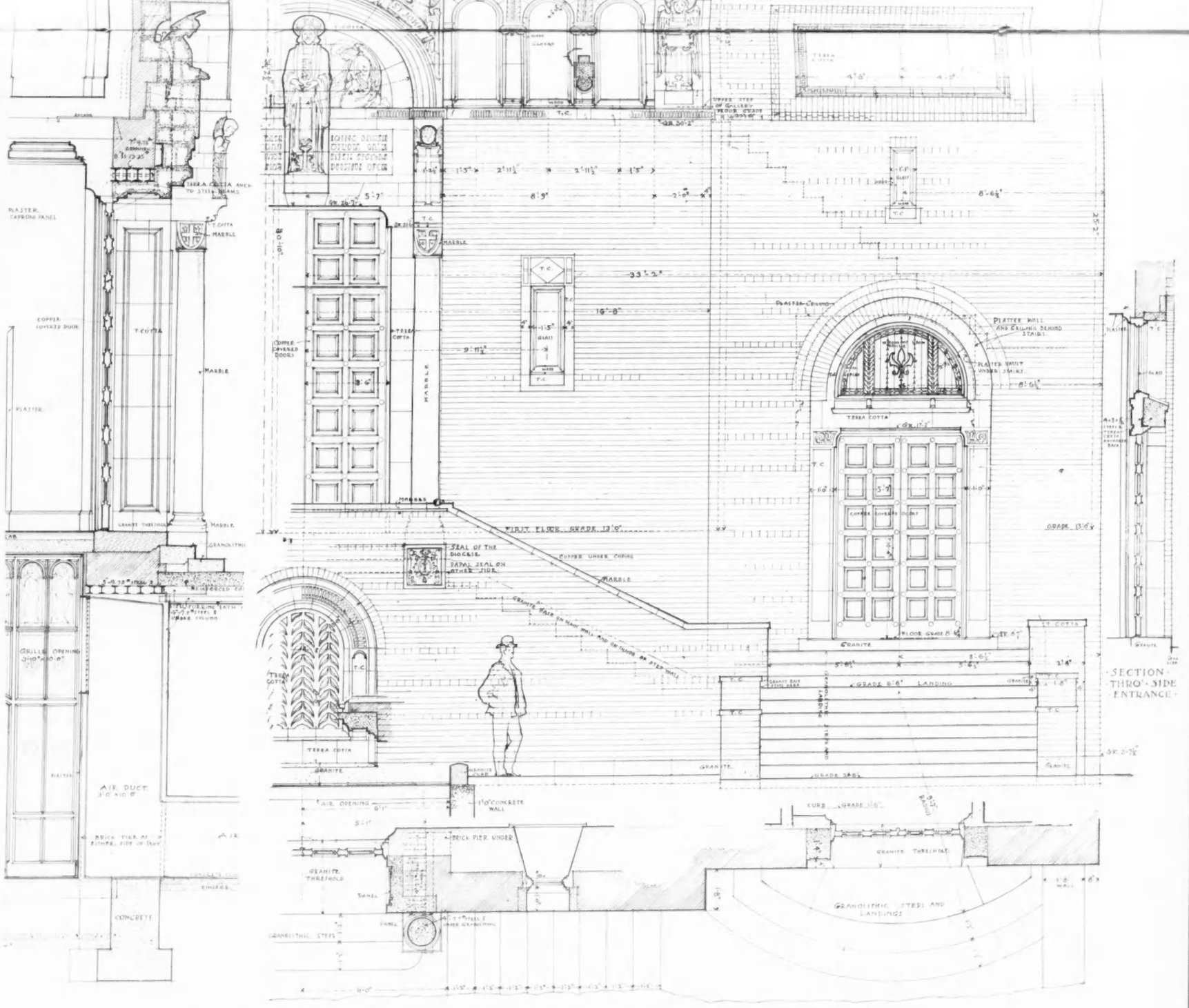
UNIV. OF MICH.

NEW PAVILION FOR THE AMERICAN LEAGUE BASE BALL CLUB, PHILADELPHIA, PA.
WILLIAM STEELE & SONS COMPANY, ARCHITECTS AND BUILDERS.



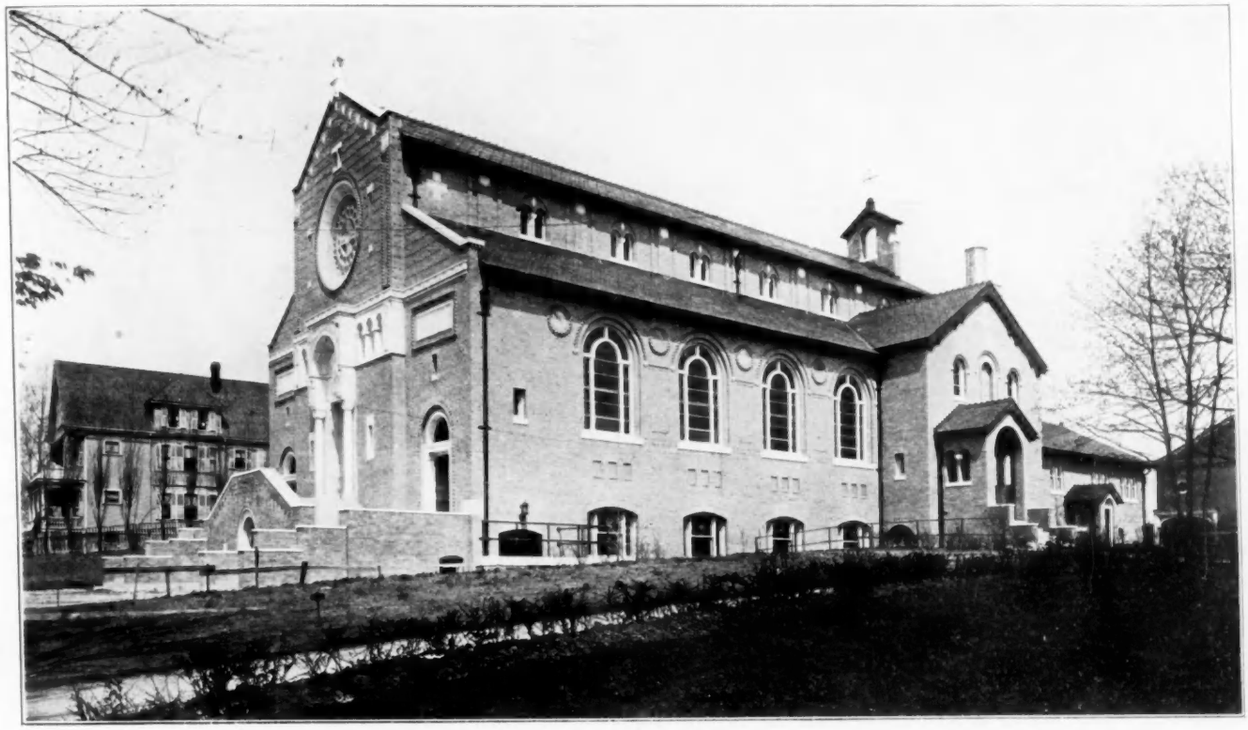
ST. CATHERINE'S CHURCH, SOMERVILLE, MASS.
MAGINNIS, WALSH & SULLIVAN, ARCHITECTS.

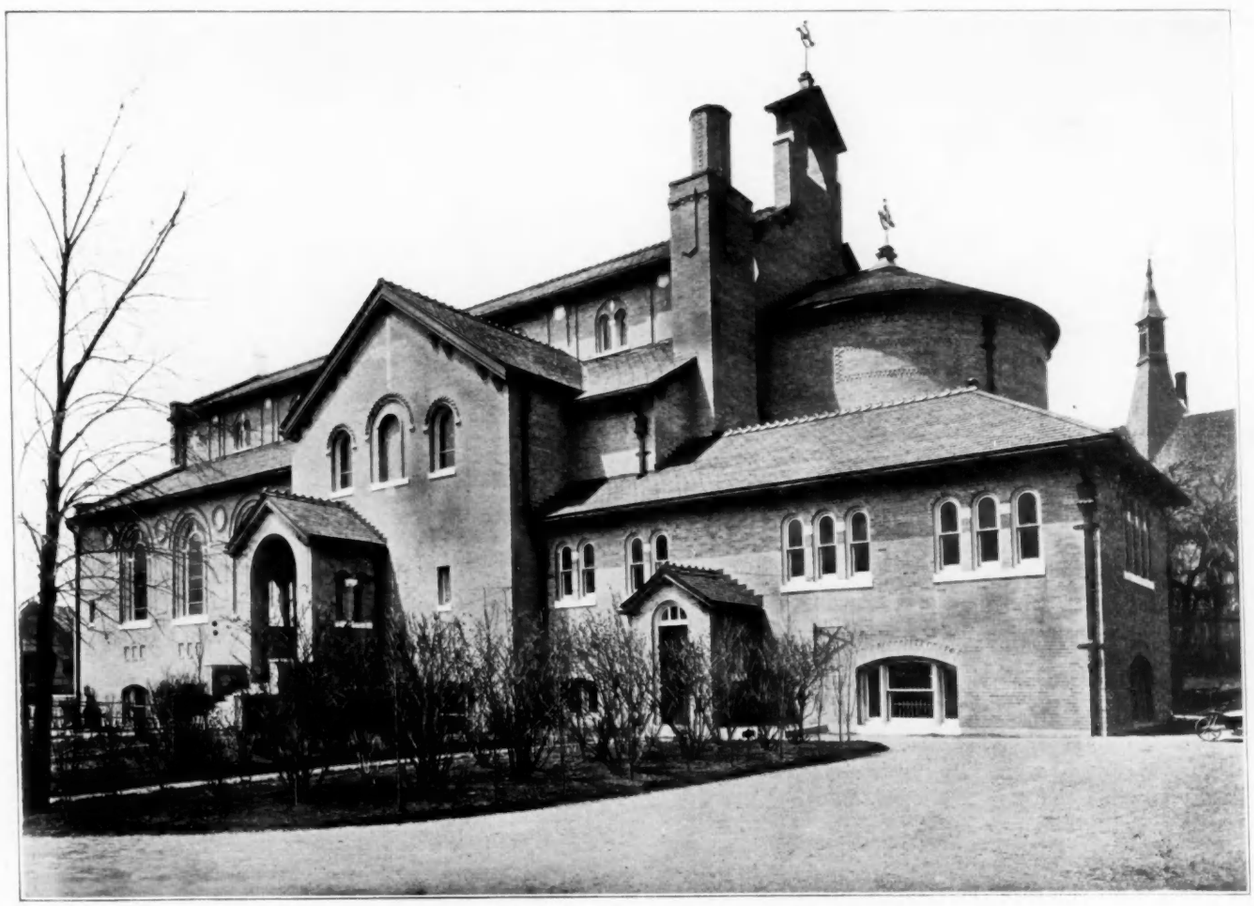

FIRST FLOOR PLAN
TERRA COTTA
COPPER
PLASTER
GLASS
OPENING



DETAIL OF FRONT ELEVATION, AND PLANS, ST. CATHERINE'S CHURCH, SOMERVILLE, MASS.

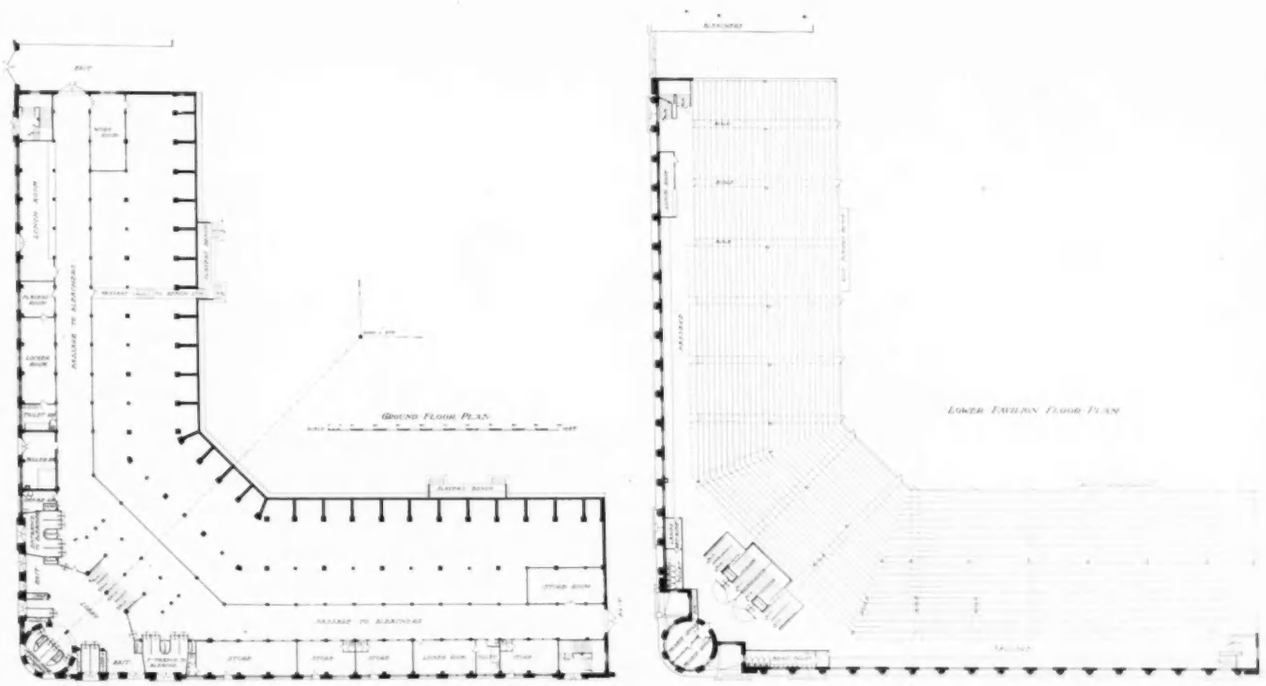
MAGINNIS, WALSH & SULLIVAN, ARCHITECTS.





ST. CATHERINE'S CHURCH, SOMERVILLE, MASS.
MAGINNIS, WALSH & SULLIVAN, ARCHITECTS.

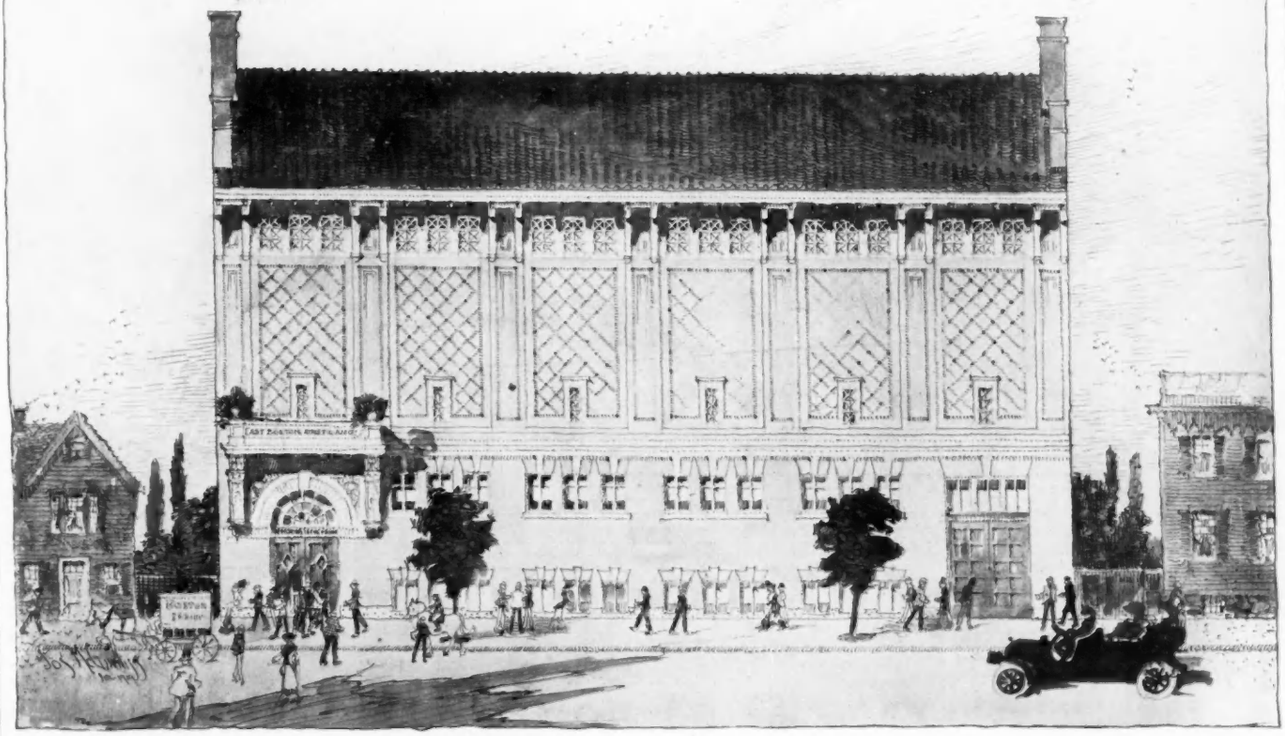
VIEW OF PAVILION FROM THE FIELD.



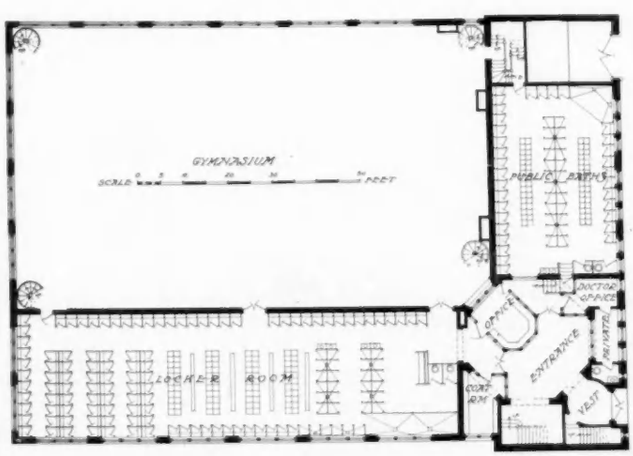
NEW PAVILION FOR THE AMERICAN LEAGUE BASE BALL CLUB, PHILADELPHIA, PA.

WILLIAM STEELE & SONS COMPANY, ARCHITECTS AND BUILDERS.

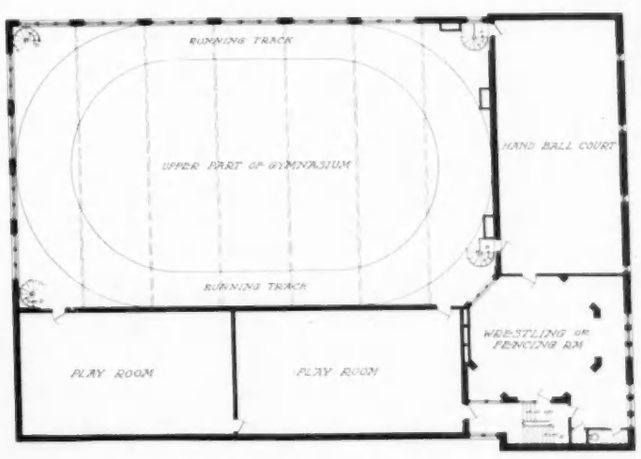
PROPOSED GYMNASIUM & PUBLIC BATHS
PARIS STREET - EAST BOSTON.
NEWHALL & BLEVINS - ARCHITECTS



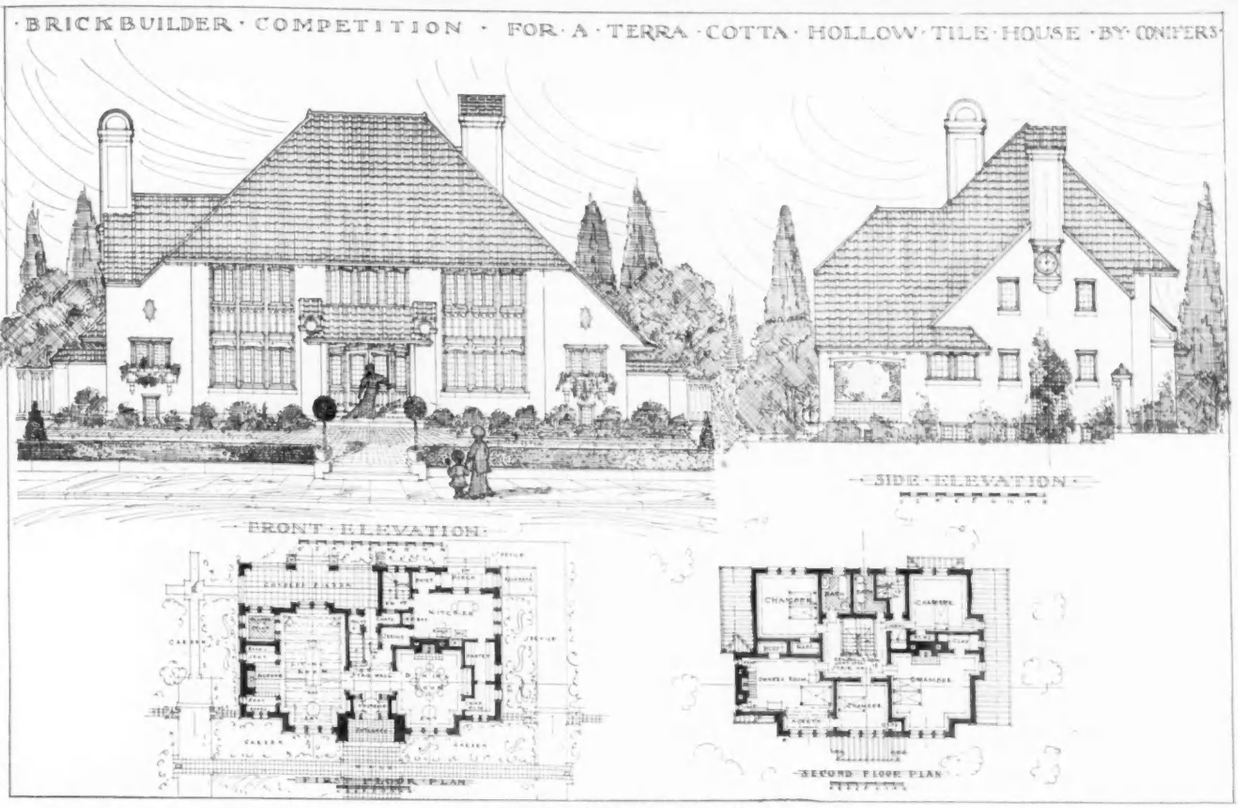
MUNICIPAL GYMNASIUM AND PUBLIC BATHS,
EAST BOSTON, MASS.
NEWHALL & BLEVINS, ARCHITECTS.



ENTRANCE HALL PLAN



SECOND FLOOR PLAN


BRICKBUILDER · COMPETITION · FOR · A · TERRA · COTTA · HOLLOW · TILE · HOUSE · BY · CONTERS
FRONT · ELEVATION
SIDE · ELEVATION
FIRST · FLOOR · PLAN
SECOND · FLOOR · PLAN

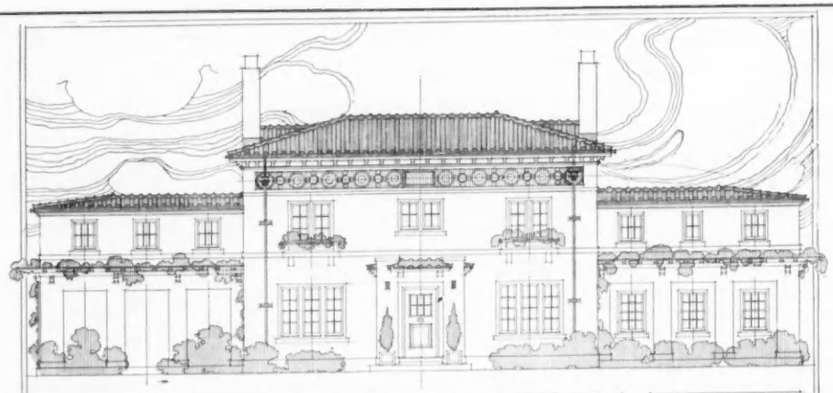
THIRD MENTION DESIGN.

SUBMITTED BY HOMER KIESSLING, BOSTON, MASS.

FOURTH MENTION DESIGN.

SUBMITTED BY E. C. GUTZWILLER AND H. W. BRUNNO, HAMILTON, OHIO.

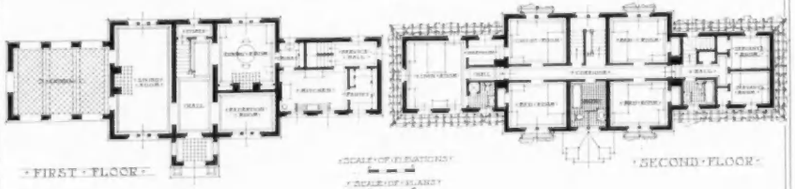
THE BRICKBUILDER COMPETITION FOR A HOUSE TO BE BUILT OF TERRA COTTA HOLLOW TILES.



BRICK·BVILDER·COMPETITION·FOR·A·HOUSE·TO·BE·BVILT·OF·TERRA·COTTA·HOLLOW·TILES

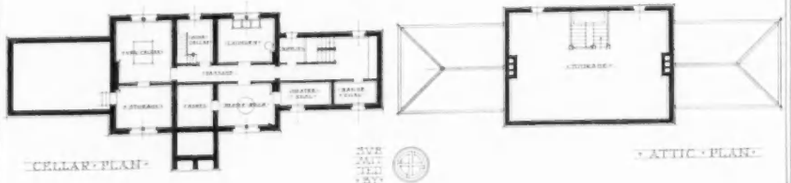
MAIN·ELEVATION

SIDE·ELEVATION



FIRST·FLOOR

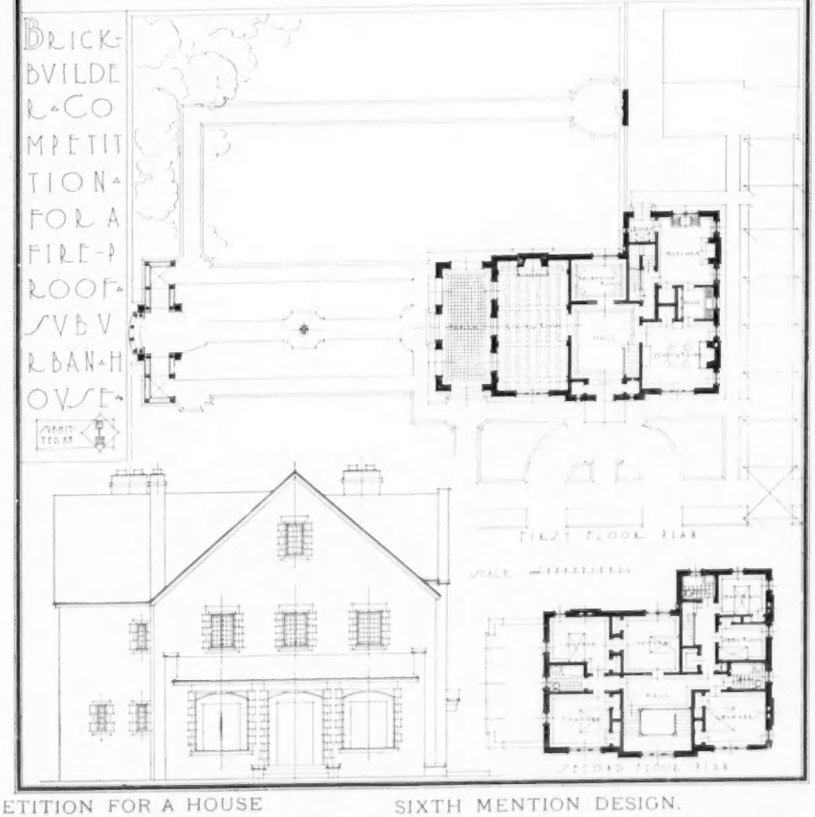
SECOND·FLOOR



CELLAR·PLAN

ATTIC·PLAN

FIFTH MENTION DESIGN.
SUBMITTED BY J. MARTIN BROWN, NEW YORK CITY.



THE BRICKBUILDER COMPETITION FOR A HOUSE TO BE BUILT OF TERRA COTTA HOLLOW TILES.

SIXTH MENTION DESIGN.
SUBMITTED BY R. E. MONSON AND C. R. NEWKIRK, NEW YORK CITY.

Competition for a House to be Built of Terra Cotta Hollow Tiles.

ESTIMATES OF COSTS FOR THOSE DESIGNS WHICH ARE ILLUSTRATED IN THIS ISSUE.

FIRST PRIZE DESIGN.

SUBMITTED BY A. H. HEPBURN.

Estimate of Cost.

Excavating	$120.00
Concrete footings; terra cotta block walls and partitions; floors of terra cotta block and concrete beams; outside walls stuccoed; labor, etc.	3,300.00
Terraces, garden walls, etc.	450.00
Concrete cellar floor	125.00
Chimneys	350.00
Roof (frame—shingled)	765.00
Inside plastering	395.00
Inside and outside finish	1,400.00
Doors, windows, and blinds	1,200.00
Finished floors	275.00
Painting	400.00
Heating	250.00
Plumbing	700.00
Electric wiring	150.00
Cutting and jobbing	120.00
Total	$10,000.00

Description.

Footings		Concrete
Basement walls	12 in. by 12 in. by 30 in.	Vitreous conduits
Outside walls	8 in. by 12 in. by 12 in.	Terra cotta block
Inside partitions	4 in. by 12 in. by 12 in.	Terra cotta block

Floors terra cotta block and concrete beams; finished wood floor laid on felt; concrete basement floor; outside stuccoed; inside plastered; white trim.

SECOND PRIZE DESIGN.

SUBMITTED BY WILLIAM G. HOLFORD.

Size of house, 31 ft. 0 ins. by 47 ft. 0 ins. Height, measured from basement floor to half way up the pitch of the roof, 31 ft. 6 ins.; cubical contents 45,895 cu. ft., which at a total cost of $10,000 gives a working allowance of 21¾ cents per cubic foot, which experience proves is sufficient to cover the cost of a house of this type.

Estimate of Cost.

Excavating, brick, and concrete work	$1,000.00
Finished fireplaces, cement floors on porches	250.00
Terra cotta blocks, floors, and walls	2,450.00
Lumber and shingles	700.00
Inside and outside finish and stairs	650.00
Tin work, gutters, and conductors	200.00
Windows, doors, frames, blinds, etc.	300.00
Rough and finished hardware, flashing, building, paper, etc.	145.00
Electric wiring, heating, and plumbing	1,500.00
Inside and outside plastering	705.00
Staging for outside plastering	50.00
Carpenter labor, mason	1,050.00
Inside and outside painting	420.00
Floors	500.00
Miscellaneous, teaming, etc.	80.00
Total	$10,000.00

THIRD PRIZE DESIGN.

SUBMITTED BY FREDERICK JOSHUA MESEKE AND ALFRED G. WHELLER.

The cost of the hollow tile in this building is based on information given on a piece of work in New Jersey, 17 miles from New York.

Area first floor	1,470 sq. ft.
Area second floor	1,290 sq. ft.
Total floor area	2,760 sq. ft.
Cubical contents from one third cellar height to middle of roof	37,428 cu. ft.
Mean perimeter of house	184 ft.
Cost per cubic foot	24.45 cents

Height of Stories in Clear.

Cellar	6 ft. 9 ins.
First floor	9 ft. 3 ins.
Second floor	8 ft. 6 ins.
Area of terrace (not included in house)	286 sq. ft.
Number of windows	39
Number of doors	27

Estimate of Cost.

Excavating	$125.00
Hollow tile construction and floors, including erecting, hauling, etc.	1,615.00
Concrete work (floors, etc.) stone steps	385.00
Roof tile	630.00
Carpentry—inside and outside finish and stairs	198.00
Windows, doors, and blinds	900.00
Rough lumber	210.00
Painting and glazing	325.00
Hardware, bells, iron work, tin work, best quality	260.00
Heating, two pipe system	550.00
Kitchen heater, boiler, etc.	110.00
Wiring	175.00
Gas piping, fixtures, etc.	350.00
Brick work in mantels, hearths, and flue lining	120.00
Plastering (interior and exterior)	850.25
Plumbing and sewerage	675.00
Scaffolding and sundries	75.00
Wood flooring	375.00
Waterproofing foundations, cellar, and first floor	394.00
Total	$8,322.25
Contractor's profit ten per cent.	832.23
Total cost of house	$9,154.48

FIRST MENTION DESIGN.

SUBMITTED BY FREDERICK G. FROST.

Estimate of Cost.

Excavation	$180.00
Masonry	4,360.00
Concrete and stucco work	550.00
Plumbing	1,000.00
Carpentry	1,025.00
Trim	1,800.00
Painting, etc.	325.00
Hardware	250.00
Roofing and metal work	200.00
Wiring	275.00
Total	$9,965.00

SECOND MENTION DESIGN.

SUBMITTED BY A. C. HOWARD.

Estimate of Cost.

Excavations	$138.00
Basement walls, stone	632.00
Basement floor, cement	170.00
First, second, and third floors, concrete and terra cotta at 40c.	1,596.00
Outside walls, 10 in. hollow tile at 23c.	615.00
Plastering outside walls	450.00
Hollow tile partitions, 6 in. at 17c., 3 in. at 12c.	425.00
Inside plastering	635.00
Tile floors, porches, terrace, bath	300.00
Fireplaces	125.00
Flooring and sleepers	250.00
Roof framing, sheathing, and shingles	600.00
Flashings, gutters, tin work, conductors	150.00
Carpenter work	1,200.00
Hardware	175.00
Mill work	500.00
Mantels	125.00
Painting and Glazing	300.00
Plumbing	700.00
Heating	750.00
Electric wiring	125.00
Miscellaneous	39.00
Total	$10,000.00

THIRD MENTION DESIGN.

SUBMITTED BY HOMER KIESSLING.

Estimate of Cost.

Excavation	$195.00
Basement floor	175.00
First, second, and third floors	983.00
Outside walls	1,666.50
Inside walls	622.50
Terraces (tiling)	150.00
Plastering outside	480.00
Plastering inside	338.00
Mill work and wood finish	2,040.00
Painting and glazing	475.00
Plumbing	900.00
Hardware	150.00
Fixtures	130.00
Electric wiring	145.00
Heating (hot water)	650.00
Plastic slate and roofing tiles	450.00
Roof framing	250.00
Extras, odd jobbing	100.00
Total	$10,000.00

FOURTH MENTION DESIGN.

SUBMITTED BY E. C. GUTZWILLER AND H. W. BRUNNO.

Estimate of Cost.

Excavating	$124.00
Concrete footings and cement work	252.00
Terra cotta tile floors	1,306.00
Outside terra cotta walls	1,153.00
Inside terra cotta walls	810.00
Interior plastering	549.00
Exterior stucco	338.00
Carpenter work	2,650.00
Painting and glazing	278.00
Plumbing and gas fitting	850.00
Hardware	100.00
Electric wiring	250.00
Steam heating	660.00
Roofing and metal work	516.00
Total	$9,916.00

FIFTH MENTION DESIGN.

SUBMITTED BY J. MARTIN BROWN.

Estimate of Cost

Excavating and grading, at 33c. per cu. yd.	$600.00
Cost of tile at factory	1,247.20
Shipping, at 80c. per ton	150.40
Cement, reinforcing, and mason work	917.00
Mill work, including all wood work except floors	1,000.50
Tile roof, at $35.00 per square	850.00
Exterior stucco, at 15c. per sq. ft.	720.00
Floors, at 20c. per sq. ft.	550.00
Painting	350.00
Plumbing	1,700.00
Heating (hot air)	450.00

Lighting (electric)	$260.00
Hardware	350.00
Sundries	150.00
Plastering, at 35c. per sq. yd.	315.00
Total	$9,310.10

SIXTH MENTION DESIGN.

SUBMITTED BY R. E. MONSON AND C. R. NEWKIRK.

The cost to build this design in the vicinity of New York City it is estimated would come within the proposed limit of $10,000 and is based on information and data derived from recent work of this character where the cost has been from 18 to 20 cents per cubic foot.

Estimate of Cost.

Excavating	$150.00
Concrete footing and cellar floor	190.00
Structural terra cotta	4,225.00
Architectural terra cotta	450.00
Rough cast (outside walls) and plastering	720.00
Tile floors (bath rooms)	150.00
Metal work	60.00
Wood framing, sheathing, and shingles	650.00
Finish carpentry	1,360.00
Plumbing	900.00
Heating	775.00
Hardware, painting, and glazing	360.00
Total	$9,995.00

DESIGN SUBMITTED BY CLAUDE W. BEELMAN.

Estimate of Cost.

Bond	$50.00
Insurance	25.00
Permit	15.00
Excavation	175.85
Concrete and cement work	216.15
Tile walls and floor construction	3,000.00
Brick work	1,350.00
Carpenter and mill work	2,265.75
Tile floors and wainscoting	335.00
Plastering	451.00
Steel lintels	20.55
Terra cotta coping	105.00
Furnace	350.00
Finish hardware	150.00
Rough hardware	50.00
Paint and glass	417.00
Tin and galvanized iron	126.75
Plumbing	575.00
Wiring	150.00
Grading	65.00
Cement walks	51.30
Range	45.00
Total	$9,989.35

DESIGN SUBMITTED BY RUSSELL EASON HART.

This estimate is based on the current prices of the materials and labor, and the author believes that they are very nearly correct. Estimating by cubage the size of the house would allow about 20 cents per cubic foot. Basement under part of house sufficient to accommodate heating and coal storage.

Estimate of Cost.

Excavating	$100.00
Cement floor in basement	75.00
Terra cotta blocks for walls, partitions, and floors laid up	3,600.00
Stucco for second story walls	150.00
Roof, including shingle tiles, framing, etc	650.00
Porches and pergola	850.00
Interior finish carpentry, plastering, etc	2,150.00
Plumbing	600.00
Hardware, painting, and glazing	250.00
Heating	450.00
Wiring and fixtures	200.00
Metal work for flashing leaders, etc	75.00
Architectural terra cotta	450.00
Incidentals	350.00
Total	$9,950.00

DESIGN SUBMITTED BY FRED B. O'CONNOR.

Estimate of Cost.

Excavation, concrete footings, terra cotta blocks, cellar floor, basement windows, coal bin, all cellar walls, and piazza piers	$510.00
Outside walls, stucco, plastered, and fireplaces	3,700.00
Floor construction	520.00
Roof construction — shingle tile on blocks and tees	1,900.00
All carpenter work above foundation	1,650.00
Painting and hardware	300.00
Heating	550.00
Plumbing	670.00
Lighting and fixtures	200.00
	$10,000.00
Deduction for wood framing instead of steel for roof	200.00
Total	$9,800.00

DESIGN SUBMITTED BY WILLIAM F. THOMPSON.

Estimate of Cost.

Excavating	$175.00
Foundation walls and footings	300.00
Chimneys and fireplaces	350.00
Cementing of cellar	75.00
Plastering, inferior	450.00
Terra cotta walls	1,500.00
Plastering, exterior	300.00
Rough lumber	1,100.00
Mill work and stairs	1,500.00
Rough and finished hardware	350.00
Glazing	$150.00
Carpenter's labor	1,300.00
Painting	375.00
Plumbing	800.00
Heating	600.00
Electric wiring and fixtures	500.00
Metal leaders and gutters	175.00
Total	$10,000.00

DESIGN SUBMITTED BY ARTHUR H. BEHR AND ROBERT C. WINTER.

Estimate of Cost.

Excavation	$80.00
Foundations, brick work	250.00
Hollow tile wall construction	2,330.00
Johnson floor construction	1,240.00
Book-tile partition work	750.00
Ornamental terra cotta	660.00
Cement	210.00
Cellar paving	110.00
Iron work	215.00
Lumber and carpentry	455.00
Mill work	285.00
Flooring	140.00
Plastering and stucco work	390.00
Cut-stone, front steps	60.00
Roofing tile	725.00
Flue lining	35.00
Copper work	170.00
Stair work	115.00
Plumbing	455.00
Gas piping	35.00
Electric wiring	40.00
Hot air heating	380.00
Painting	150.00
Glazing	40.00
Fireplaces	320.00
Faience tiling	60.00
Bath and porch floor tile	75.00
Lighting fixtures	145.00
Hardware	80.00
Total	$10,000.00

DESIGN SUBMITTED BY ROBERT H. WAMBOLT.

Foundation of vitrified conduits. Concrete footings and basement floor. Porch and piazza paved with brick. First, second, and third floors of terra cotta tile and reinforced concrete. Roof framing of wood. Red tile roof. Walls, both exterior and interior, of terra cotta tile plastered. Exterior stuccoed — color, pink. All exterior wood work painted white. Iron work painted black.

Estimate of Cost.

Excavating	$100.00
Concrete floor and footings	200.00
Brick work	450.00
Tile work, fireplaces, etc	200.00
Terra cotta and labor	3,200.00
Exterior plastering	400.00
Interior plastering	450.00
Tile roof	400.00
Framing	700.00
Inside and outside finish	1,150.00
Doors, windows, etc	900.00
Finish floors	250.00
Cutting and jobbing	100.00
Heating	200.00
Plumbing	700.00
Electric wiring	150.00
Painting	250.00
Ornamental iron	200.00
Total	$10,000.00

DESIGN SUBMITTED BY FERNEKES & CRAMER.

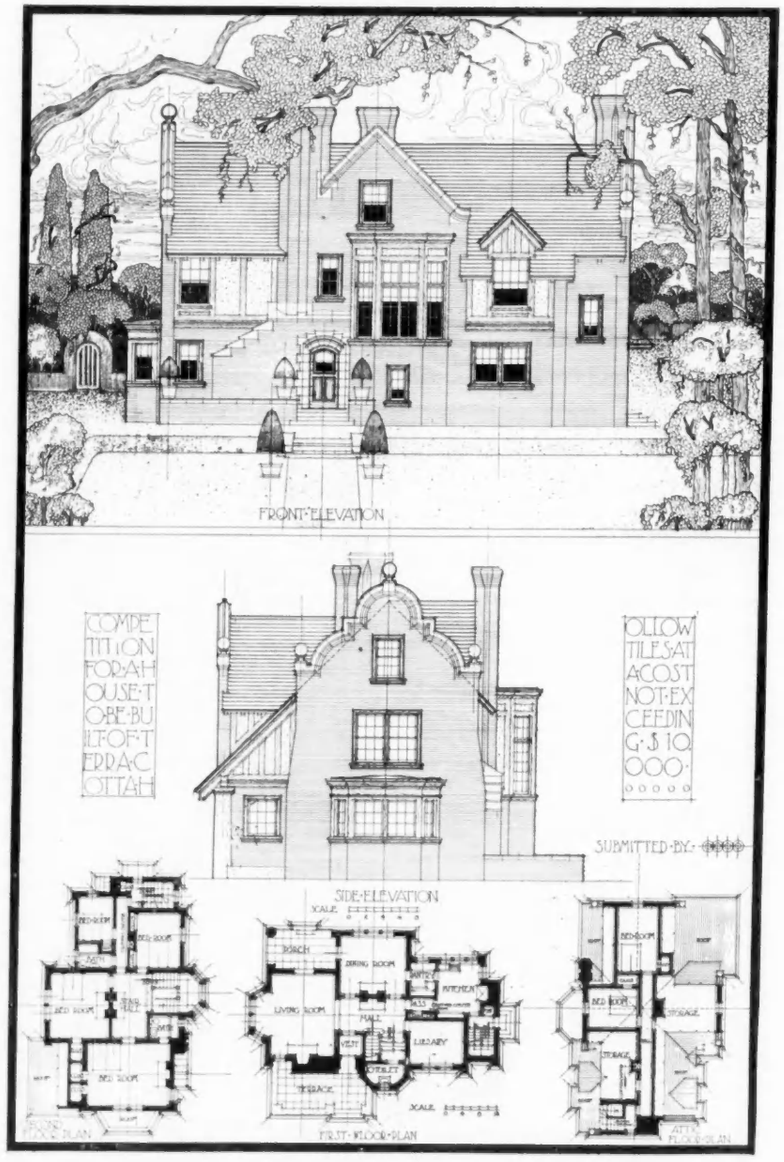
Estimate of Cost.

Excavating	$150.00
Tile masonry, cement, and concrete work	4,600.00
Outside and inside plaster	500.00
Carpenter work	2,020.00
Painting and glazing	600.00
Tin work	80.00
Heating	600.00
Electric work	200.00
Tile floors	263.00
Plumbing	600.00
Incidentals	387.00
Total	$10,000.00

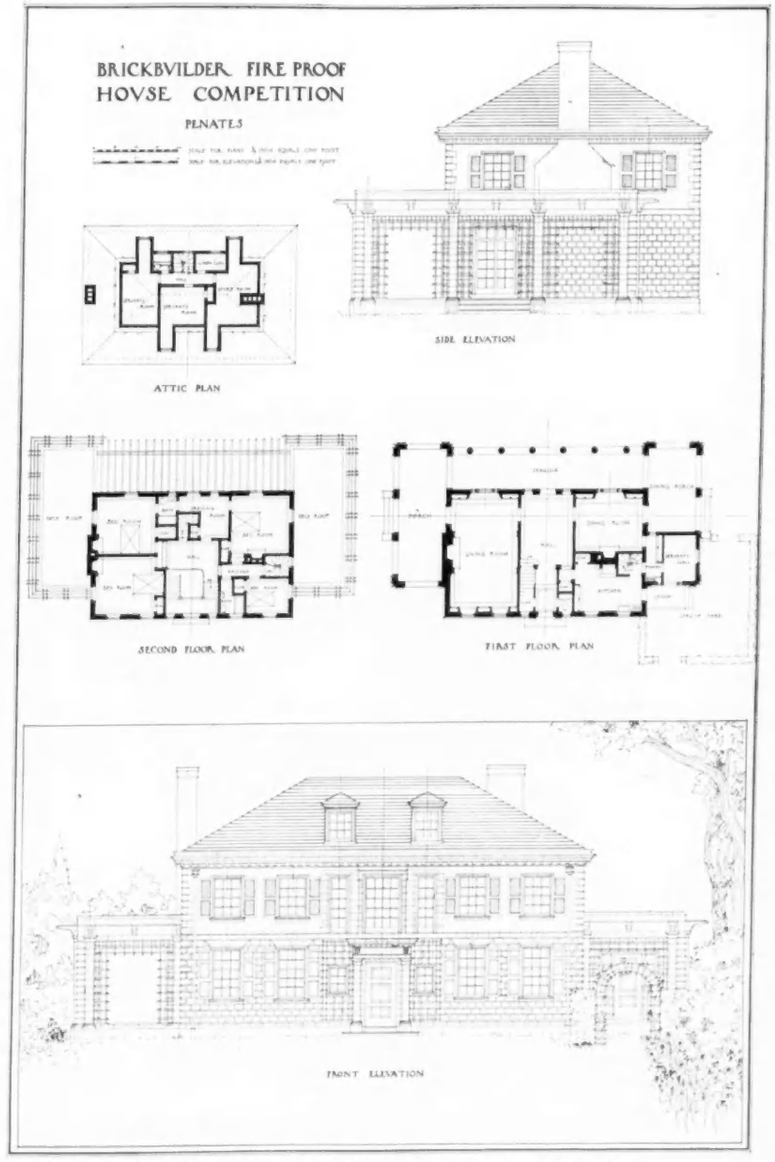
DESIGN SUBMITTED BY FRANK LE BARON AURELIO AND CHARLES FRANK GIFFORD.

Estimate of Cost.

Excavation	$75.00
Masonry	5,850.00
Plastering (interior)	285.00
Carpenter work	1,525.00
Tile, roof	486.00
" floors and wainscot	125.00
" Moravian	65.00
Painting and glazing	375.00
Plumbing and heating	835.00
Electric work	65.00
Hardware	110.00
Sheet metal work	85.00
Incidentals	100.00
Total	$9,981.00
Cubic contents, 40,950 cu. ft.	
Estimate from similar executed work — 24 cents per cubic foot	$9,828.00

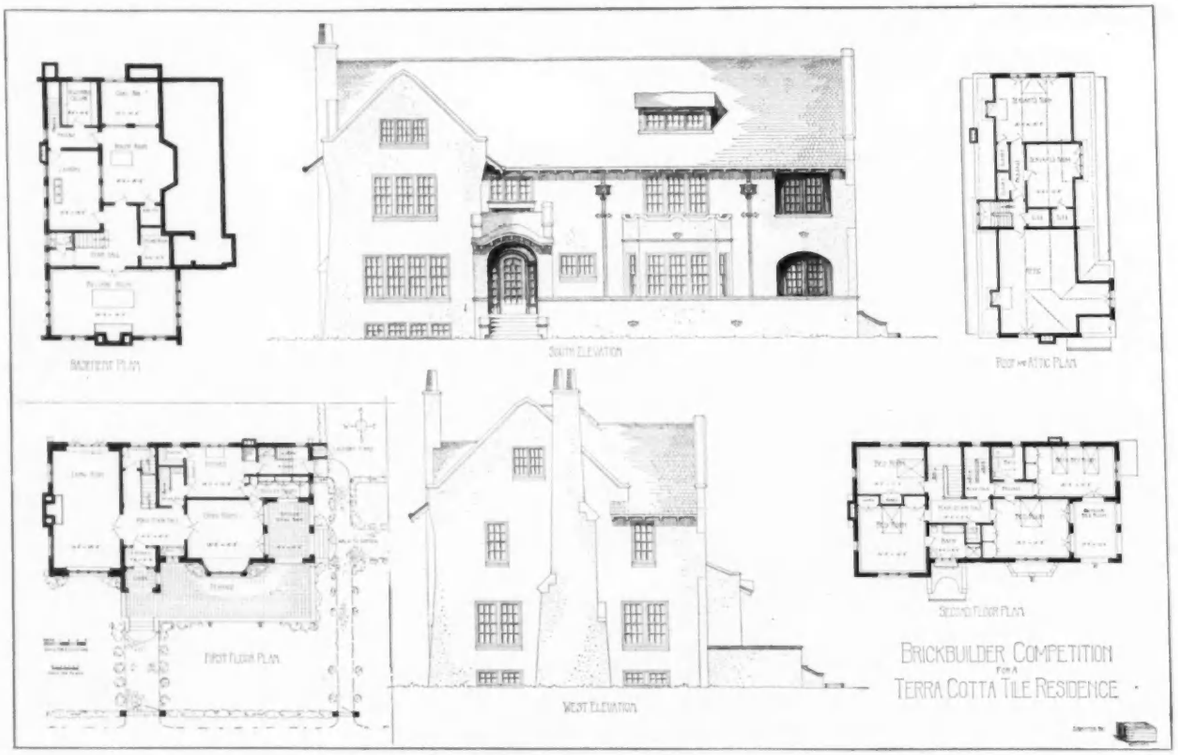


SUBMITTED BY CLAUDE W. BEELMAN, INDIANAPOLIS, IND.

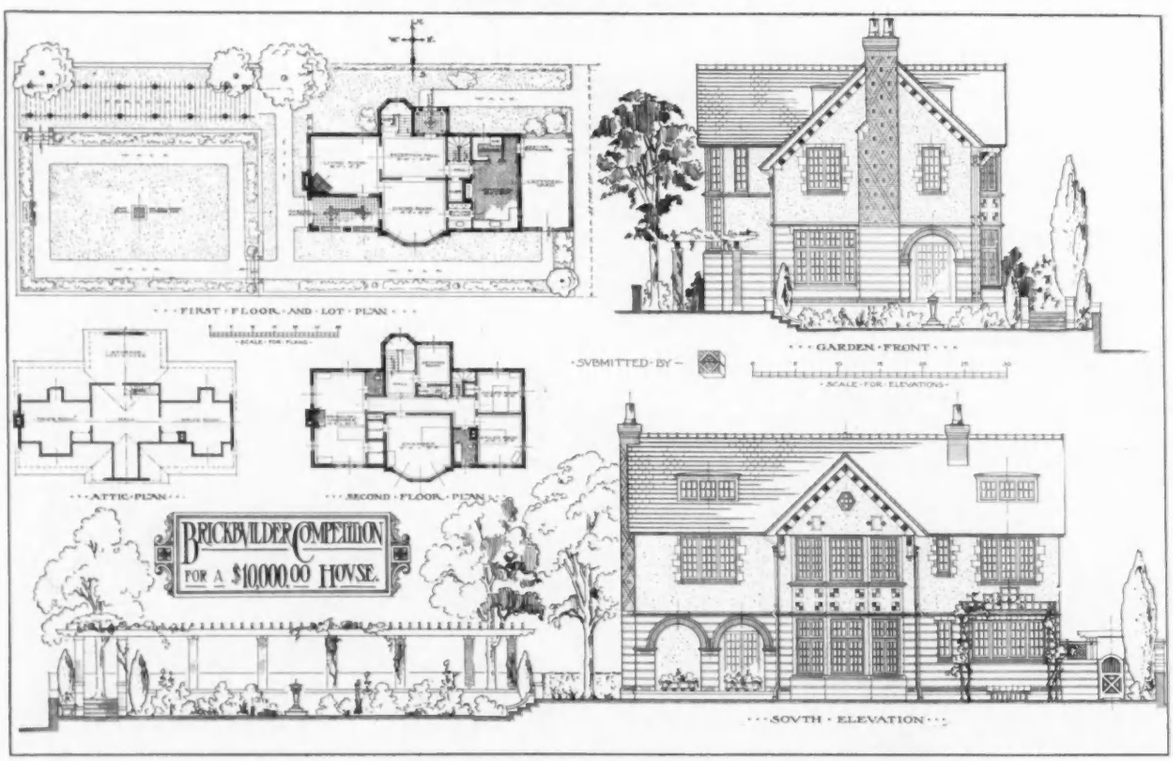


SUBMITTED BY RUSSELL EASON HART, NEW YORK CITY.

THE BRICKBUILDER COMPETITION FOR A HOUSE TO BE BUILT OF TERRA COTTA HOLLOW TILES.



SUBMITTED BY FERNEKES & CRAMER, MILWAUKEE, WIS.



SUBMITTED BY FRANK LEBARON AURELIO AND CHARLES FRANK GIFFORD, HARTFORD, CONN.

THE BRICKBUILDER COMPETITION FOR A HOUSE TO BE BUILT OF TERRA COTTA HOLLOW TILES.

Editorial Comment and Miscellany.

PAVILION FOR THE PHILADELPHIA AMERICAN BASE BALL CLUB.

THE park contains about 250,000 square feet, or approximately 6 acres. The distance from the home plate to the flag pole in deep center field is 515 feet. Spectators leave the grounds through three 12, three 16, and two 18 foot gates, in the addition to six large exits under the grand stand. The seating capacity of the grounds is 23,000. Of this number 10,000 may be accommodated in the grand stand, and 13,000 in the field bleachers. There are no columns or posts to obstruct a view of the entire field — in fact all the seats in the pavilion and bleachers are so arranged that a clear view may be had of the entire field. The outer edges of the field have been banked so that spectators standing in rows one above the other have a clear view of the field. A garage has been built under the right field bleachers which will accommodate 200 cars, and another under the left field bleachers which will accommodate as many more. Steel folding chairs are used in the pavilion. The players' quarters contain reception and lounging rooms, locker room, and shower baths, in addition to toilet rooms.

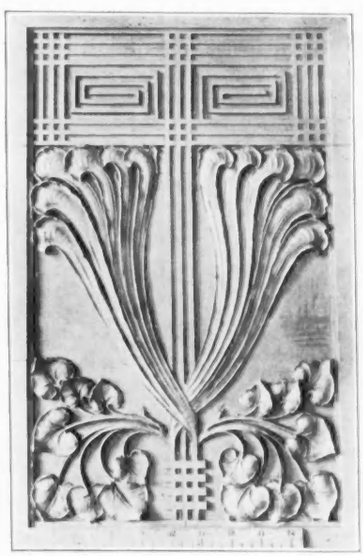
THE city planning conference at Washington, which enlisted the names of, and was honored by the presence of some of the most eminent men in the country, had for its chief ends the housing of city populations, the wiping out of slums, the making of city life wholesome and fairly livable to the poor man. It declared for the provision of air, light, and space at whatever cost to the community as a safeguard against disease and crime which would later require a yet greater outlay to eradicate. It dwelt less with the esthetic aspect of city planning than with the practical and everyday needs of the life of the masses; or as Secretary MacVeagh expressed it: "City planning in general should be directed less along the lines of providing automobile driveways and bridle-paths in the outskirts and more to the cleaning up of the congested centers of population, where disease and vice and crime breed."

FOUNTAIN ON GROUNDS OF W. GOULD BROKAW, GREAT NECK, L. I.
Modeled by R. Hinton Perry. Executed in cream white glaze terra cotta, by Atlantic Terra Cotta Company.

DETAIL BY NELSON & VAN WAGENEN, ARCHITECTS.
South Amboy Terra Cotta Company, Makers.

AT THE annual meeting of the National Board of Fire Underwriters held in New York last month the president of the association, Mr. J. Montgomery Hare, said he could see no indication of any permanent reduction of fire losses in this country. Since 1880 population has increased seventy-three per cent while the annual fire loss has increased one hundred and forty-three per cent. After stating that we lead in the world in the destruction of property by fire he remarked: "Questions of construction explain a part of the difference, and climatic conditions may play their part, but when everything is considered I believe that the conclusion will follow that the main reason is recklessness here, as against the care, forethought, and wise supervision in Europe."

THE commission authorized by the last session of Congress to obtain plans for a proposed memorial amphitheater to be erected in the National Cemetery at Arlington, Va., has made its report. A firm of New York architects has prepared a design for a roofless structure covering 34,000 square feet, seating about 5,000 people, and affording standing room in a surrounding colonnade for many more. A feature



DETAIL BY ANDREW SANDEGREN, ARCHITECT.
Northwestern Terra Cotta Company, Makers.

of the plan is a crypt for the burial of distinguished men, and provision is also made for memorial busts or portrait statues. The ultimate cost is placed at $695,000. The commission is composed of President Taft (while Secretary of War), Secretary Cortelyou, Eliot Woods, I. G. Kimball, and Ex-Governor Curtis Guild.

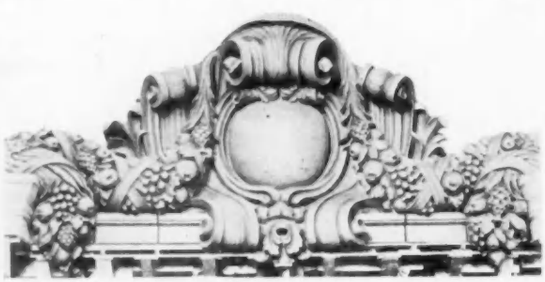
PANEL BY EDWARD L. TILTON, ARCHITECT.
Made by Atlantic Terra Cotta Company.

ALLAN ROBINSON, president of the Allied Real Interests of New York has criticized the proposed new building code as increasing the cost of future construction by the following requirements: Limiting the spacing of beams and employing additional tie rods, increasing the floor loads which may be placed in certain kinds of buildings, restricting the use of properly constructed cast-iron columns, requiring automatic sprinklers in all fireproof loft buildings, requiring standpipes of a kind owned by one interest, providing that all buildings six stories and higher must be equipped with auxiliary fire pumps, providing for one specific kind of paint for structural steel, the formula of which paint is owned by one interest, and the requiring of heavier wood joist and girders in houses of ordinary non-fireproof construction.

DETAIL BY MOORE & LANDSIEDEL, ARCHITECTS.
New Jersey Terra Cotta Company, Makers.

UPON May 8th ground was broken at Mount Nilson, near Pasadena, Cal., for the Carnegie Solar Observatory Company's telescope tower. There are to be two towers, in fact, one inside the other, with three inches clear space between them and being connected only at the base. The object of this is to prevent vibration. The dome will be 175 feet above the ground, and the cost of the tower will be $50,000.

THE Washington monument is soon to be eclipsed at the national capital. The navy department is planning to build in Rock Creek Park a 600 foot tower to serve as the keystone of what will probably be the greatest wireless telegraphy station in the world, as it will enable the navy department to converse with navy yards on the two American coasts, with ships anywhere in the North Atlantic and at Gibraltar. The tower will be 50 feet in diameter at the base and 8 feet in diameter at the summit.



DETAIL BY KNIGHT & COLLINS, ARCHITECTS.
Brick Terra Cotta and Tile Company, Makers.

The only structures exceeding it in height are the two life insurance towers in New York and the Eiffel Tower in Paris.

THE Harveyized nickel steel vault installed in the new down-town building of the Knickerbocker Trust Company is said to be the first of its type ever constructed. It is 31 feet long and 23 feet deep and rests on a foundation independent of that of the building.

It is built of 3½ inch steel within a 2 foot wall of concrete. Two combination and one four-movement time locks control twenty-three 4 inch steel bolts which secure the 17 ton outside door. The 10 ton inner door is equally securely held. Hanging in front of the paying tellers at 60 Broadway and at 34th street and Fifth avenue are slates on which written messages are electrically transmitted and reproduced.

IN GENERAL.

President Taft has dissolved the National Fine Arts Council instituted by Theodore Roosevelt.

The real estate speculators in Philadelphia, who attempted to "hold up" Mr. Henry Phipps, have at last given title to the one parcel of land needed for the site of the proposed tuberculosis hospital in a congested portion of that city. The building, for which Mr. Grosvenor Atterbury is the architect, will now go forward without delay.

On May 28th the Governor's Room of the New York City Hall was reopened to the public after something like a year's labor had been spent on restoring it to conform to the style of the early days of the last century. The architect's drawings of the original building and documents in the possession of the McComb family were drawn upon, and the cost of the work, about $25,000, was defrayed by Mrs. Russell Sage.

The pleasant college town of Amherst, Mass., is soon to have its "Amherst Inn." One hundred thousand dollars is already in hand for it and Messrs. McKim, Mead & White have prepared the design.

Ludlow & Valentine have been appointed official

architects for Stevens Institute of Technology, Hoboken, N. J., which has in contemplation extensive developments in the building line.

Mellen C. Greeley has opened an office for the practice of architecture in "The Baldwin," Jacksonville, Fla.

The Atelier conducted by Eli Benedict, architect, at 1947 Broadway, New York, will be open day and evening during the summer.

At the annual meeting of the Washington Architectural Club, held in June, the following officers were elected for the coming year: Percy C. Adams, president; Richard L. Watmough, first vice-president; B. C. Flournoy, second vice-president; Charles S. Salin, secretary; Daniel J. E. Lix, treasurer.

BUILDING FOR PACIFIC MUTUAL LIFE INSURANCE COMPANY, LOS ANGELES, CAL.
Exterior of Architectural Terra Cotta, made by Conkling-Armstrong Terra Cotta Company.
Parkinson & Bergstrom, Architects.

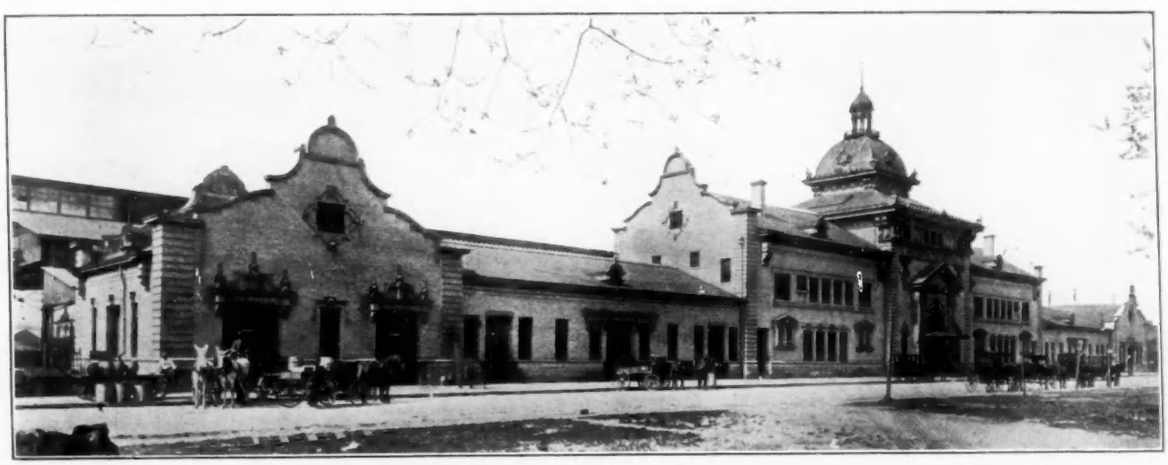
President Frost, of Berea College, has announced that the great industrial school for negroes will be established near Shelbyville, Ky. The erection of buildings will begin in a short time, there being a fund of $350,000 now available.

The American Embassy Association has been formed in New York for the purpose of aiding the provision of suitable residences for our ambassadors abroad. Twenty very prominent men comprise the executive committee.

F. H. Chapin has been made third vice-president of the Hydraulic Press Brick Company of St. Louis, and will succeed William H. Hunt as resident manager of the Hydraulic Company at Cleveland.

The bricks used in St. Catherine's Church, Somerville, Maginnis, Walsh & Sullivan, architects, illustrated in this number, were furnished by Fiske & Co., and the architectural terra cotta by the Atlantic Terra Cotta Company.

The Jewettville Pressed & Paving Brick Co. has purchased the plant of the Buffalo Clay Manufacturing Com-



UNION RAILWAY STATION, AUGUSTA, GA.
Built of Light Buff Brick, made by Columbus Brick Terra Cotta Company.
Frank P. Milburn, Archtiect.

pany, which is situated near their own plant at Jewettville, N.Y. The newly acquired plant is modern in its entire equipment, and of large capacity. This addition will enable the Jewettville Company to handle successfully large operations, which require their high grade red front impervious brick.

O. W. Ketcham supplied the brick for the pavilion for the American League Base Ball Club, Philadelphia, illustrated in this month's issue.

BORLAND BLOCK, CHICAGO.
Built of brick, made by Ohio Mining & Manufacturing Company, Thomas Moulding Company, Chicago Agents.
Shepley, Rutan & Coolidge, Architects.

The New Jersey Terra Cotta Company will supply the architectural terra cotta for the following new buildings: Columbia Theater and Office Building, New York City, W. H. McElfatrick, architect; Bank Building, Myrtle St., Brooklyn, L. Berger & Co., architects; two apartment buildings for Cathedral Realty Company, New York; apartment, Broadway and 64th St., New York, Buchanan & Fox, architects; hotel, Pittsburg, Pa., M. H. Dickinson, architect.

The terra cotta used in the Oliver Building, Pittsburg, illustrated in THE BRICKBUILDER for May was supplied by the Atlantic Terra Cotta Company, and not the Atlanta Terra Cotta Company, as stated.

NEW BOOKS.

The Organization, Construction and Management of Hospitals, with numerous plans and details, by Albert J. Ochsner, M.D., and Meyer J. Sturm, architect. Second edition revised and enlarged. Chicago, Cleveland Press.

Medieval Architecture: Its Origin and Development, with lists of monuments and bibliographies, by Arthur Kingsley Porter. This important work is now ready and is offered to subscribers. The first two volumes deal with the history of the origins of the Gothic architecture and its development in Normandy and the Ile de France, and are sold as a set. Price $15.00. There will also be a third volume which will be sold separately, and will treat of the Saxon, Norman, Early English, Geometric,

SCHOOLHOUSE, DANVILLE, ILL.
Faced with wire cut dark brown brick, made by Western Brick Company.
Jenney, Mundie & Jensen, Architects.

Flowing, and Perpendicular styles of English architecture. This volume is in active preparation, and its publication will be announced later. Especial pains have been taken with the illustrations, which have been much depended upon to tell the story of changes and developments as well as to make clear technical words and constructions. Descriptions in words have always been eliminated where it was possible to substitute a visual image. The 201 reproductions in the first two volumes are half-tones or line cuts, with very few exceptions full page in size, and include many original photographs and drawings made expressly for this work. New York, The Baker & Taylor Co.

DETAIL BY G. AJELLO, ARCHITECT.
New York Architectural Terra Cotta Company, Makers.

The Building Mechanics' Ready Reference — Plumbers', Steamfitters', and Tinners' Edition, by H. G. Richey, Superintendent of Construction United States Public Buildings. 16mo, vi + 529 pages, 201 figures. Morocco, $1.50 net. New York: John Wiley & Sons.

CAR BARN, BALTIMORE.
Terra Cotta made by O. W. Ketcham.
Simonson & Pietsch, Architects.

Notice to Bridge Engineers, Architects, and Builders

The Board of Park Commissioners of the City of Minneapolis, Minnesota, being about to connect by waterways the lakes of its Park System, is desirous of securing designs, detail plans, specifications, and estimates for several bridges which shall be of such design as will suit the surroundings. For the purpose of obtaining such designs and plans from expert bridge engineers and architects, the Board offers $1,500.00 in three prizes, as follows:

First Prize	**$800.00**
Second Prize	**500.00**
Third Prize	**200.00**

The lakes to be connected by canals or waterways are three in number and are in a choice residential section of the city. They are encircled by parkways, the banks are beautifully wooded, and in their building it is desired to construct the highest possible type of Park Bridges, such as will be beautiful and in harmony with the surroundings. It is hoped that the opportunity afforded for monumental work will, even more than the prizes offered, induce the best bridge architects and engineers of the country to enter into this competition.

Prospective competitors can secure full information by addressing the Board. Designs and plans will be received by the Board until September 1, 1909, at 5.00 p. m. The bridges are to be of concrete, stone, or a combination of both. Address

BOARD OF PARK COMMISSIONERS
MINNEAPOLIS, MINN.

WANTED—An architectural draftsman, capable of taking full charge of office, A No. 1 on plan, design, and perspective. All classes of work. State salary, experience. Crosby & Henkel, 705-706 Morris Building, New Orleans, La.

WANTED AT ONCE—A reliable experienced architectural draftsman, one who has had a general office training. A good opportunity to the right party. Send samples of work, state experience and salary required. Address, Alfred H. Wheeler, Architect, 416 Globe Building, St. Paul, Minn.

WANTED—Position with established architect by draftsman of experience, college trained. Thoroughly competent to manage office, detail, design and superintend. Principal experience has been with good class of school, church, and domestic work. Western N. Y., Penn., or Ohio preferred. Address, B. S., care The Brickbuilder.

A Minneapolis architect needs immediately a draftsman of first class experience on working, scale and full sized detail drawings. The office requires carefully studied work and only applications with references assuring this will be considered. Experience in church work desirable. Write fully as to experience, salary, and present location. Address, "Minneapolis," care The Brickbuilder.

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COMPETITION FOR A BRICK HOUSE.

Cost not to Exceed $10,000.

FIRST PRIZE, $500. **THIRD PRIZE, $150.**

SECOND PRIZE, $250. **FOURTH PRIZE, $100.**

MENTIONS.

PROGRAM.

THE problem is a house with walls built of brick. Porches, verandas, or piazzas may be in part or wholly of brick or wood.

The cost of the house (exclusive of the land) including heating — equipment complete; plumbing — including all fixtures; gas piping and electric wiring — with fixtures, is not to exceed $10,000.

Designs which in the opinion of the jury call for a house which would cost more than the amount named to execute will not be considered.

The plan should provide accommodations for a family of five — three adults and two children — and at least one servant. There are no restrictions as to size, shape, or style of house — except the cost — nor the size, shape, or location of lot.

The particular object of this Competition is to obtain designs for a BRICK HOUSE of moderate cost. It is especially desired that the treatment of the exterior shall show the possibilities in obtaining charming but restrained effects by the use of bond and jointing and pattern. The BRICK HOUSE is rich in precedent, and the material, whether considered from the esthetic or the practical standpoint, meets in the fullest measure the demands put upon it. To summarize; — the Competition calls for A CHARMING BRICK HOUSE OF MODERATE COST.

CONSTRUCTION.

The methods usually employed in the construction of brick walls may be followed, except that the walls are to be wholly of brick and of sufficient thickness to safely carry the load. The program does not call for a fireproof house, although that form of construction is not objected to. The choice of brick is left to the designer.

DRAWINGS REQUIRED.

On one sheet a pen and ink perspective, without wash or color, drawn at a scale of four feet to the inch. Also plans of first and second floors at a scale of eight feet to the inch. In connection with the plan of the first floor show as much of the arrangement of the lot in the immediate vicinity of the house as space will permit.

On another sheet, at the top, the front elevation drawn at a scale of eight feet to the inch, — and below the elevation, a sufficient number of details to properly show the brickwork and the special features of the design, — drawn at half inch scale in black ink without wash or color. Sections shown are to be cross-hatched in such manner as to clearly indicate the material, and floor plans are to be blocked in solid.

The size of each sheet is to be exactly 24 inches by 18 inches. Strong border lines are to be drawn on both sheets one inch from edges, giving a space inside the border lines 22 inches by 16 inches. The sheets are not to be mounted.

Each set of drawings is to be signed by a *nom de plume* or device, and accompanying same is to be a sealed envelope with the *nom de plume* on the exterior and containing the true name and address of the contestant.

The drawings are to be delivered flat, or rolled (packaged so as to prevent creasing or crushing), at the office of THE BRICKBUILDER, 85 Water Street, Boston, Mass., on or before Sept. 15, 1909.

Drawings submitted in this Competition are at owner's risk from time they are sent until returned, although reasonable care will be exercised in their handling and keeping.

The designs will be judged by three or five well-known members of the architectural profession.

In making the award the jury will take into account the fitness of the design in an artistic sense to the material employed; the adaptability of the design as shown by details to the practical constructive requirements, and the excellence of the plan.

Drawings which do not meet the requirements of the program will not be considered.

The prize drawings are to become the property of THE BRICKBUILDER, and the right is reserved to publish or exhibit any or all of the others. The full name and address of the architect will be given in connection with each design published. Those who wish their drawings returned, except the prize drawings, may have them by enclosing in the sealed envelopes containing their names ten cents in stamps.

For the design placed first there will be given a prize of $500.
For the design placed second a prize of $250.
For the design placed third a prize of $150.
For the design placed fourth a prize of $100.

This Competition is open to everyone.

The prize and mention drawings will be published in THE BRICKBUILDER.